Supermicro Building Block Solutions for Embedded Applications, The Internet Of Things and The Intelligent Edge
5G Accelerates Network Transformation

Supermicro Servers for 5G Infrastructure

Supermicro optimizes 5G virtual and container hybrid services from low-latency customer premises platforms to AI training, storage and network platforms in the data center.

Our platforms are optimized for network virtualization and containerization of Network Functions - we enable heavier workloads onto single platforms distributed in the network with the focus of power savings, reduction of network gear and high availability in harsh conditions.

Supermicro Supporting Edge-to-Cloud Infrastructure

Customer Premise Edge Compute  RAN / Fiber Head  Central Office  Regional Data Center  Remote Data Center

<1ms  <2-5ms  <10ms  <20ms  <50ms

Customer Premises  Edge-Optimized  Network-Optimized  Resource Management  ML/Archive
5G and Edge Computing Power New Applications

- Open hardware and virtualization allow rapid, flexible network deployment
- Local AI inferencing for real-time, real-life services
- Streaming video content localized and optimized at the Edge
- Heterogeneous processing powers these applications right where they are needed
Outdoor Edge and 5G Use Cases

5G RAN

- For Mobile Network Operator (MNO) technical and procurement teams to roll out 5G networks
- Network Functions Virtualization (NFV) via virtual machines and containers provides vRAN functions to new (SA) and upgraded (NSA) 5G networks
- O-RAN Driven solutions for next generation 5G RAN
- Open-standard eCIPRI fronthaul connectivity via Intel® FPGA Network Acceleration Card N3000

Edge AI

- For operator services division, looking to deploy new applications
- Complements Supermicro’s market-leading AI training systems
- Local AI Inferencing provides critical decision-making for real-time applications
- NVIDIA GPU cards supported
- EGX platform for rapid deployment across the network and multiple NGC-Ready for Edge certified systems
- Support of OpenVINO and Movidius AI technologies

Video Streaming

- For smart city, infrastructure, utilities, industry, and enterprise deploying localized content and services
- Maximum memory and storage
- Complete solutions including BigTwin in the data center and Red Hat® OpenShift® Container Platform
- Video transcoding infrastructure delivered and managed via containers
- Localization and local caching of content such as

Supermicro Enabling Edge IoT Services

- Wide variety of industry-leading hardware, built for the Edge and leveraging Intel® technologies
- Next-generation applications/technology will drive the need for flexible, reliable, Scalable, and easy to manage Edge operating platforms.
- Able to run any workload — VMs, containers, serverless
- Autonomous, self-managing, self-healing, self-optimizing, and low-touch deployment at scale
- Simple, secure networking with WAN optimization and zero-trust architecture
- Cost-compatible with IoT and Edge requirements
Outdoor System for Network Functions

For the Distributed Unit (DU) or Central Unit (CU), the system with additional PCIe cards can support LTE or 5G with baseband functions decoupled from the hardware and deployed on network functions virtualization (NFV) infrastructure. Specifically for DU, it will comply with O-RAN front haul LLS-C1, LLS-C2 and LLS-C3 configurations based on the different combination of PCIe cards provided in the system.

**Figure 2.**
1019P-FH2T for controlled environments cards for FH and MH interfaces.

**Figure 3.**
E403-9P-FN2T for deployment in more demanding environments.

For the Distributed Unit (DU) or Central Unit (CU), the system with additional PCIe cards can support LTE or 5G with baseband functions decoupled from the hardware and deployed on network functions virtualization (NFV) infrastructure. Specifically for DU, it will comply with O-RAN front haul LLS-C1, LLS-C2 and LLS-C3 configurations based on the different combination of PCIe cards provided in the system.

**Supermicro Supporting Edge-to-Cloud Infrastructure**

The RAN DU sits between the Remote Radio Unit (RRU) and the Central Unit (CU) and includes real-time functions, baseband processing and radio frequency processing. Currently, Supermicro’s is using Intel® N3000 PAC card for layer 1 FEC acceleration. Based on the O-RAN Front Haul LLS configuration, the DU can be connected to RRUs directly with SyncE and PTP support and acting as the PRTC for timing, or the DU can be connected to a cell site router which will be the PRTC. The DU/CU from Supermicro has been validated with vRAN software from Altiostar, Mavenir and Parallel Wireless for LTE and 5G.
Supermicro’s Intelligent Retail Edge

**Small cluster for most workloads**
SYS E100-9W-H anywhere
Intel® Core i5/i7/i9 with fanless operation

**Medium Cluster with AI capability**
E300-9D-4CN8TP desktop
Intel® Xeon® D capable, PCI-E expansion

**Rackmount cluster for extreme workloads**
SYS-1019D-16C-FHN13TP
Intel® Xeon® D with 2x PCI-E expansion slots

**Wallmount Cluster for extreme workloads**
SYS-E403-9P-FN2T
Intel® Xeon® capable, expandable PCI expansion, hardened

Supermicro’s Intelligent Retail Edge provides an integrated software-defined operating platform that significantly simplifies the deployment, management, orchestration, and networking of Edge infrastructure and applications.

The platform runs on Supermicro’s IoT and Edge hardware, ranging from small Edge devices to full-scale rack-based Edge servers that can support GPU, FPGA, and other technologies.

Supermicro’s Intelligent Retail Edge is offered in three different certified cluster configurations leveraging the industry-proven SuperServer platform that is optimized for specific sized stores, and application workload requirements.

- Entry-level cluster platform based on the E100, a small, powerful fanless IoT/Edge gateway server for small stores with space and power constraints, such as small convenience stores or restaurants, running basic workloads such as Point-of-Sale (POS), video surveillance, and inventory management.
- A mainstream cluster requiring a versatile, high-performance IoT/Edge server based on the E300, has a small physical footprint and superior acoustics for small to medium-sized stores running multiple applications at the Edge.
- High-end cluster configuration utilizing the 1019/5019, a short depth rack-mount Edge workhorse server with rich storage and networking options and support for accelerator and GPU technologies needed for AI/ML applications for medium to large-sized stores, such as grocery stores and mid-sized size retailers.

Developed through a collaboration with NodeWeaver and NetFoundry, Supermicro’s Integrated Retail Edge platform supports small-to-large clusters for retail applications.

Providing reliable and secure networking can be challenging in distributed Edge environments, and securing customer and point-of-sale (POS) data is critical in retail environments. Supermicro’s Retail Edge platform provides simple, easy to deploy Network-as-a-Service (NaaS) connectivity powered by NetFoundry to deliver exceptional performance, zero-trust security, agility, and simplicity.

NodeWeaver’s adaptive hypervisor provides secure and partitioned execution of any application without the traditional overhead of virtualization. Initial performance benchmarks show that the platform can run applications with performance near to that of bare metal execution, while maintaining the ability to provide for high availability and cloud-like flexibility.
Industrial Automation Use Cases

**Factory Optimization:**
Moving the industry toward Industry 4.0 through managed workloads, virtual machines, and real-time Edge compute response.

**Flexible Automation and Controls:**
Interoperability with existing devices and flexibility to allow for technology refresh via software defined systems.

**Equipment Diagnostics:**
Improve production and uptime through diagnostics & predictive maintenance via anomaly detection

**Process Insights & Measurement:**
Connecting the unconnected with visibility of data for enterprise insights. Ability for production to respond in real-time.

**Quality Control:**
Vision workloads + AI to improve production quality and reduce manufacturing defects with smart cameras + AI

**Worker Safety:**
Connecting human interface via data aggregation and visual solutions for safety and productivity.

**Customer Outcomes:**
- Better response
- Reduced costs
- High availability
- Improved quality
- Flexible operations
- Reduced down time
- Higher yields
- Increased efficiencies
The biggest challenge of the connected future with smart devices is network and compute latency. Intelligent, connected devices can generate a tremendous amount of data across networks impeding the bandwidth required for quality of service while impacting the quality of experience. To reduce this impact, Supermicro is distributing the computing power at the Edge real time instead of relying on far end cloud-based datacenters for further processing.

Artificial Intelligence (AI) has the ability to innovate and advance conventional practices and business operations. To bring AI to the edge, Supermicro and our partners provide heterogeneous platforms offering a comprehensive solution portfolio of deep learning platforms, servers including acceleration engines, inference platforms, and training servers to provide the necessary workloads for all Edge to Cloud AI platforms.

Supermicro’s approach to Intelligent Edge is to provide the building blocks of both hardware and software infrastructures enabling a common platform for implementing many AI models for IIoT, Healthcare, 5G, Renewable Energy, Oil/Gas and transportation. Our heterogeneous platforms provide a wide array of options based on the needs of the solution.
The IoT is starting to become engrained in our everyday lives, as smart devices become commonplace, and soon it will be hard to imagine life before it. IoT gateways and industrial PCs are being deployed en masse, in order to bring compute power closer to the data. Beyond the staggering scale of growth, managing these devices results in a myriad of challenges for customers. Devices are spread across the field, often in locations that are difficult to secure and hard to reach. The scale and complexity of the Edge ecosystem means that many of the traditional processes for deploying and maintaining devices are not sufficient. Instead, customers need a solution that addresses complexities such as manage devices widely distributed, secure devices in a perimeter-less world and process data at remote locations even with unreliable connectivity and high latency.

With Supermicro cloud-managed gateways along with ZEDEDA management software, customers can streamline and simplify the management of Edge hardware across the landscape. Our high-powered, rugged devices enable the customers to move processing power out of the datacenter and closer to their Edge. New devices arrive out-of-the-box with pre-installed management software, allowing IT to remotely manage all initial and ongoing hardware orchestration.

Benefits of choosing Supermicro solutions:
- Central visibility and management over all Edge hardware
- Hardware integrity and security ensured with zero-trust model
- Zero-touch device provisioning
- Configure and manage applications at scale
- Agility and scalability with 100% cloud-based model
Addressing Market needs with Products and Technology

**Medical Imaging Scanners**
Medical imaging is the ability to create visual representation of the interior organs and functions of the human body for clinical analysis. High performance image processing is critical for medical scanners and instrumentation such as CT, MRI, PET, OCT & Ultrasound.

**Industrial Automation**
Modern factories use several forms of control systems for operating mechanical sensors, switches, relays, conveyors, hydraulics, pneumatics and electrical devices. General purpose process control servers and IoT Gateways are increasingly being deployed to run industrial and business application software to help improve operations, simplify device management, and reduce maintenance costs.

**Communication Infrastructure**
Network security servers monitor and control incoming and outgoing network traffic based on predetermined security rules. Intel® QAT provides cryptography engines for faster encryption and decryption of messages or information for authorized and intended use.

Software Defined Network (SDN), Network Functions Virtualization (NFV) (also known as Virtual Network Function (VNF)) offers new ways to design, deploy and manage data communication and networking services.

**Smart Cities**
Smart Cities are a vision of new urban development that integrate multiple city resources and services using information technology and Internet of Things (IoT) solutions. The goal is to build a highly efficient system that integrates all local services such as public transportation, schools, libraries, malls, utilities, law enforcement, hospitals, and other community services.

Information and communication technology (ICT) is used to enhance community resources and services, improve response time, provide better and more efficient utilization of resources, reduce cost, and improve communication between citizens and government.

**Intelligent Transportation**
Transport control systems provide innovative and advanced applications and services relating to different modes of transport and traffic management. These systems enable both transport authorities and commuters to be better informed, and make smarter and coordinated use of various public transport systems.

**Digital Signage**
Digital signage provides projection display technologies such as digital images, video, streaming media, etc. found in public arenas such as stadiums, museums, hotels and restaurants, corporate buildings, airports, train and bus stations for marketing, advertising or informational purposes. Sophisticated and advanced solutions provide streaming video or multimedia content over high-speed connection services including remote management, large multiple-displays and highly interactive displays in public places for informational or advertising purposes.

**Retail Kiosk, Point-of Sale, Banking ATM**
Retail Kiosk, Point-of Sale, and Banking ATM are interactive computer terminals that feature embedded low-power, small form factor hardware and software that is self-contained within the machine. They provide access to information and applications for commerce, retail transaction, entertainment, information and education.

**Digital Security & Surveillance**
Advanced video surveillance systems are used for monitoring and observing an area. These systems include Analog or Digital cameras and are often connected to recording and Storage Devices over IP networks.

Video Surveillance as a Service refers to hosted cloud-based video surveillance. The service typically includes video recording, storage, remote viewing, management alerts, cyber security and more. Cloud technology advances and greater bandwidth availability are making VSaaS — also called cloud video surveillance — increasingly attractive.

**Cloud, Warm and Cold Storage**
Cloud data storage is a service model in which information is remotely stored, managed, maintained and made accessible to users over the internet. Warm and cold data is data that is accessed less frequently and is usually stored on lower performing and less expensive storage environments either on premises or in the cloud.

**Electronic Test Equipment**
Test equipment is used to generate signals and capture responses from semiconductor devices and electrical circuits, with the ability to diagnose faults and/or guarantee the proper operation of the electronic devices. Electronic test equipment ranges from the very simple to extremely complex and sophisticated instrumentation that are used during semiconductor manufacturing, inspection, test and debug.
Supermicro's new generation X11 DP/UP Embedded Motherboards and Systems offer the highest levels of performance, efficiency, security and scalability in the industry with up to: 3TB DDR4 2666MHz in 24 DIMM slots per node, 7 PCI-E slots, SAS 3.0/SATA 3.0/NVMe hot-swap HDD/SSD support, 10GBase-T/10G SFP+/56Gbps FDR InfiniBand networking options, SATA Disk-on-Module (DOM), and IPMI 2.0 plus KVM with dedicated LAN, and can support new SKU of 2nd gen Intel® Xeon® Scalable processors. The embedded boards offer 7 year life cycle.

**Intel® Xeon® Scalable Processor Systems**

**UP Motherboard Solutions**

- **C621** | 28 cores | 165W
- **C622** | 28 cores | 205W
- **C622** | 28 cores | 205W
- **C622** | 28 cores | 205W
- **C622** | 28 cores | 205W

- **X11SPL-F**
- **X11SPH-nCTF/nCTPF**
- **X11SPW-TF/CTF**
- **X11SPI-TF**
- **X11SPM-F/TF/TPF**

**DP Motherboard Solutions**

- **C624** | 28 cores | 165W
- **C621** | 28 cores | 205W
- **C621** | 28 cores | 205W
- **C621** | 28 cores | 205W

- **X11DPI-N/NT**
- **X11DPH-T**
- **X11DAI-N**
- **X11DPX-T**
X11 Intel® Xeon® Processor D-2100

High Core, High Performance (FCBGA 2518, SoC)

Supermicro X11 Generation of Motherboards/Servers support Intel® Xeon® Processors D-2100 (Formerly Skylake-D) series system-on-chip (SoC) Processors. Include up to four integrated ports of 10 Gigabit Intel® Ethernet, and up to 512 GB of an addressable memory with ErrorCorrecting Code (ECC), Intel® QuickAssist Technology (QAT) provides up to 100Gbps of hardware acceleration for compute-intensive, such as cryptography, encryption, and description.

Server Solutions

NEW!

SYS-1019D-16C-RAN13TP+
SYS-1019D-14CN-RAN13TP+
SYS-1019D-4C-RAN13TP+
Intel® Xeon® D-2100IT/2100NT series 14/16 cores

SYS-E403-9D-16C-RDN13+
SYS-E403-9D-14CN-RDN13+
SYS-E403-9D-4CN-RDN13+
Intel® Xeon® D-2100IT/2100NT series 14/16 cores

SYS-E403-9D-16C-IPD2
SYS-E403-9D-14CN-IPD2
Intel® Xeon® D2100IT/D2100NT series 14/16 cores

SYS-E302-9D
Intel® Xeon® D-2100IT series 4 cores

NEW!

SYS-E1019D-16C-RAN13TP+
SYS-E1019D-14CN-RAN13TP+
SYS-E1019D-4C-RAN13TP+
Intel® Xeon® D-2100IT/2100NT series 14/16 cores

SYS-E1019D-16C-RDN13TP+
SYS-E1019D-14CN-RDN13TP+
SYS-E1019D-4C-RDN13TP+
Intel® Xeon® D-2100IT/2100NT series 14/16 cores

SYS-E1019D-16C-IPD2
SYS-E1019D-14CN-IPD2
Intel® Xeon® D2100IT/D2100NT series 14/16 cores

NEW!

SYS-1019D-FHN13TP
SYS-1019D-4C-FHN13TP
SYS-1019D-14CN-FHN13TP
SYS-1019D-16C-FHN13TP
Intel® Xeon® D-2100IT/2100NT series 4/8/14/16 cores

SYS-1019D-FN8TP
SYS-1019D-4C-FN8TP
SYS-1019D-14CN-FN8TP
SYS-1019D-16C-FN8TP
Intel® Xeon® D-2100IT/2100NT series 4/8/14/16 cores

SYS-1019D-FRN8TP
SYS-1019D-4C-FRN8TP
SYS-1019D-14CN-FRN8TP
SYS-1019D-16C-FRN8TP
Intel® Xeon® D-2104NT 8 cores

Motherboard Solutions

D-2123T | 4 Core | 60W
D-2141T | 8 Core | 65W
D-2166NT | 12 Core | 85W
D-2183T | 16 Core | 100W
D-2146NT | 8 Core | 80W
D-2166NT | 12 Core | 85W
D-2183T | 16 Core | 100W

X11SDV-4C-TLN2F
X11SDV-8C-TLN2F
X11SDV-12C-TLN2F
X11SDV-16C-TLN2F
X11SDV-8C-TPBF
X11SDV-12C-TPBF
X11SDV-16C-TPBF
Supermicro X11 Generation MBD and Servers support Intel® Xeon® E-2100 and E-2200 (Coffee Lake / Refresh) Series processors with enterprise-class reliability and performance, offering server-class motherboards and entry-level servers. Intel® Xeon® E introduce the first 6-core/12-Thread processors with optimized 14 nm technology. These processors offer thermal design power (TDP) options of (35W - 95W) to fit specific designs configurations with performance and low-power requirements. The E series processors are ideally suited for a wide range of embedded/IoT, Networking and Storage Applications.

Server Solutions

**SYS-1019C-FHTN8** 1U • 15” depth
- Up to 128GB ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots
- 8x 1GbE, 1 dedicated IPMI LAN
- 1 VGA, 2 USB 3.1, 2 USB 2.0
- 1 PCI-E 3.0 x16
- Dual M.2 M key (22110/2280)
- 2x 2.5” Hot Swap, 2x 2.5” Internal SATA3 Drive Bay

**SYS-5019C-MHN2** 1U • 19.8” depth
- Up to 128GB ECC UDIMM, up to DDR4-2666MHz; 4 DIMM slots
- 1 PCI-E 3.0 x16 slot
- 4 Hot-swap 3.5” drive bays
- Dual LAN with Intel® Ethernet Controller i219LM and i210AT
- 1U 350W Multi-output Platinum Level power supply

Motherboard Solutions

**X11SCM-F**
- 8 cores | 80W

**X11SCZ-F**
- 8 cores | 95W
Supermicro’s newest generation X12 UP Embedded Motherboards with Intel’s Xeon® W-1200 series and 10th Generation Core i9/i7/i5/i3/Pentium/Celeron series processor offer the highest levels of performance, efficiency, security and scalability in the industry with up to: 128GB DDR4 2933MHz in four DIMM slots, CPUs up to 10 cores, PCI-E slots with bifurcation support, USB 3.2 Gen 2, M.2 E/M-keys, and SATA 3.0 (6Gbps).

Designed with performance, reliability, manageability, and long life support in mind, Supermicro’s single processor motherboards are the perfect solution for a variety of multitasking and heavy workload applications.

Motherboard Solutions

**W480**
- Up to 10 cores | 125W

**W480E**
- Up to 10 cores | 125W
  - 2W Audio Amplifier

**Q470E**
- Up to 10 cores | 125W
  - VGA, HDMI, DVI-D, DP

**W480E**
- Up to 10 cores | 125W
  - 2 x 1G Base-T

**W480E**
- Up to 10 cores | 125W
  - 2 x 10G Base-T + 2 x 1G Base-T

**Q470E**
- Up to 10 cores | 125W
  - 2 x 1G Base-T
X10 Intel® Xeon® Processor D-1500

High Core, High Performance, Low Power (FCBGA 1667, SoC)

Supermicro X10 Generation of Motherboards/Servers support Intel® Xeon® Processors D-1500 (Formerly Broadwell-DE) series system-on-chip (SoC) Processors. Based on Intel’s third-generation 64-bit system on a chip (SOC) and 14 nm silicon technology, the Supermicro product lineup offers processor scalability from two up to sixteen cores, making it the perfect choice for a broad range of high-density, high-performing, midrange-power solutions (TDP ~25W to 65W) that brings superior design solutions to the intelligent Edge.

The Intel® Xeon® processor D-1500 product family is offered with a seven-year extended supply life and 10-year reliability for Internet of Things designs.

Mini-ITX Server & Motherboard Solutions

SYS-5018D-FN4T*1U • 9.8” depth

- Front I/O, Space-efficient, compact design
- Intel® Xeon® processor D-1541, Single socket FCBGA 1667; 8-Core, 45W
- 1 PCI-E 3.0 x 16, 1x M.2 PCI-E 3.0 x4 (Supports NVMe, AHCI) 2242/2280
- Up to 128GB ECC RDIMM DDR4 2400MHz or 64GB ECC/non-ECC UDIMM in 4 sockets
- Dual 10GbE LAN and Intel i350-AM2 dual port GbE LAN

SYS-1018D-FRN8T1U • 16.9” depth

- Intel® Xeon® SoC 16 Core, 32 Threads, 65W, 1.7~2.3GHz
- VT-d/x, TXT, AES-NI, Intel® Xeon® RAS, Built-in 10GbE
- Up to 128GB 2133MHz DDR4 RDIMM or 64GB 2133MHz ECC/Non-ECC UDIMM
- IPMI 2.0 with KVM Dedicated port
- 6x GbE LAN and Dual 10G SFP+

Flex-ATX Server & Motherboard Solutions

SYS-1018D-FRN8T1U • 16.9” depth

- Intel® Xeon® SoC 16 Core, 32 Threads, 65W, 1.7~2.3GHz
- VT-d/x, TXT, AES-NI, Intel® Xeon® RAS, Built-in 10GbE
- Up to 128GB 2133MHz DDR4 RDIMM or 64GB 2133MHz ECC/Non-ECC UDIMM
- IPMI 2.0 with KVM Dedicated port
- 6x GbE LAN and Dual 10G SFP+

*Microsoft Azure Certified. Please see page 44 for complete list.
X11 Intel® Xeon® E3-1200 v6/v5
(Kabylake/Skylake, FCLGA 1151)

Supermicro X11 Single Processor servers now support E3-1200 v6/v5 (Kabylake/Skylake) series processors. Server motherboards coupled with the long life C236 PCH Chipset provide up to 7 years of extended life for embedded applications. These systems deliver breakthrough performance, high performance graphics, stronger security and power efficiency over previous generation products. The systems are ideal for a wide range of IoT applications, including industrial control and automation, retail kiosks and medical devices.

Server Solutions

- SYS-5019S-MN4  Up to 4 cores | 80W
- SYS-5019S-MT  Up to 4 cores | 80W
- SYS-1019S-MC0T  Up to 4 cores | 80W
- SYS-1019S-WR

Motherboard Solutions

- X11SSH-F  4 cores | 80W
- X11SSH-LN4F  4 cores | 80W
- X11SSH-TF  4 cores | 80W
- X11SSH-CTF  4 cores | 80W
- X11SSM  4 cores | 80W
- X11SSM-F  4 cores | 80W
- X11SSL  4 cores | 80W
- X11SSL-F  4 cores | 80W
- X11SSL-CF  4 cores | 80W
- X11SSL-nF  4 cores | 80W
- X11SSW-F  4 cores | 80W
- X11SSW-TF  4 cores | 80W
- X11SSW-4TF  4 cores | 80W
- X11SAE-LN4F  4 cores | 80W

Supermicro X11 Single Processor servers now support E3-1200 v6/v5 (Kabylake/Skylake) series processors. Server motherboards coupled with the long life C236 PCH Chipset provide up to 7 years of extended life for embedded applications. These systems deliver breakthrough performance, high performance graphics, stronger security and power efficiency over previous generation products. The systems are ideal for a wide range of IoT applications, including industrial control and automation, retail kiosks and medical devices.
A2 Intel® Atom™ C3000

*High Density, Low Power Solutions (Denverton, FCBGA 1310)*

Supermicro A2 Generation of Motherboards/Servers support Intel® Atom Processors C3000 (Formerly Denverton) series system-on-chip (SoC) Processors.

Based on low-power Goldmont microarchitecture and 14-nanometer process technology, this product family extends the scalability of Supermicro Products into industry-leading performance per watt, low thermal design power (TDP), and unprecedented levels of configurable high-speed I/O for accelerated innovation across networking, storage, Internet of Things (IoT), and Scalable solutions. It also offers hardware assist Intel® QuickAssist Technology (Intel® QAT) to accelerate storage compression and cryptographic workloads.

**Server Solutions**

**SYS-5019A-FTN41U • 9.8” depth**
- 1x 3.5” or 4x 2.5” internal drive bays
- 1 PCI-E 3.0 x4, 1 M.2 (M key for SSD, 2242/2280, PCI-E 3.0 x2 or SATA3)
- Up to 256GB ECC RDIMM DDR4 2400MHz or 64GB ECC/non-ECC UDIMM in 4 DIMM slots
- 4 Gbe LAN, 1 dedicated IPMI LAN

**SYS-5019A-FN5T1U • 9.8” depth**
- 1 PCI-E 3.0 x8, 1 M-Key 2242/80 supports PCI-E 3.0 x2/SATA
- 1 B-Key 3042/2280 supports PCI-E 3.0 x2/SATA/USB
- 4x 10GbE LAN ports, 1x 1GbE LAN port (IPMI shared LAN), 1x COM, 4x USB 3.0
- SoC controller for 2 SATA3 (6Gbps) ports
- 1x 3.5” or 2x 2.5” HDD

**Motherboard Solutions**

**Mini-ITX**

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**Flex-ATX**

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</tr>
<tr>
<td>A2SDV-8C-TLN5F</td>
<td></td>
<td></td>
<td>A2SDV-12C-TLN5F</td>
<td></td>
<td></td>
<td>A2SDV-4C-LN8F/LN10PF</td>
<td></td>
<td></td>
<td>A2SDV-8C-LN8F/LN10PF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUPERMICRO® Embedded/IoT Building Block Solutions - August 2020**

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Based on low-power Silvermont microarchitecture and 22-nanometer process technology, this product family extends the scalability of Supermicro Products into smaller footprints, low power, and hardware assisted encryption/compression engines for networking communications, storage and intelligent systems applications.

This product family offers multi-core processing capabilities (from two cores to eight cores), a range of thermal design power (TDP) from 7 to 20 watts, supports energy-efficient network designs with dual 1G to Dual 10G LAN Ports, Multiple Display capabilities, including fanless embedded designs.

### Server Solutions

**SYS-5018A-LTN4** 1U • 9.8" depth
- Up to 2 DIMMs, 16GB of DDR3 ECC SODIMM 1333MHz
- 2x 3.5" or optional 4x 2.5" internal SATA2 and SATA3 Drive Bays
- 1x PCI-E 2.0 x8 Slot, 2x USB 3.0, 2x USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 200W Gold Level Low-Noise Power Supply

**Intel® Atom™ C2358**
2 cores | 7W

**SYS-5028A-TN4** Mini Tower
- 4 DIMMs / 64GB of DDR3 ECC SODIMM 1600MHz
- 4x 3.5”/hot-swap SATA trays: 2x 2.5” internal HDD Drive Bays
- 1 PCI-E 2.0 x8 Slot, 2 USB 3.0, 2 USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 250W Bronze Level Low-Noise Power Supply

**Intel® Atom™ C2750**
8 cores | 20W

### Motherboard Solutions

<table>
<thead>
<tr>
<th>Mini-ITX</th>
<th>Proprietary</th>
<th>mATX</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2550F: C2550</td>
<td>4 cores</td>
<td>14W</td>
</tr>
<tr>
<td>-2750F: C2750</td>
<td>8 cores</td>
<td>20W</td>
</tr>
<tr>
<td>C2358</td>
<td>2 cores</td>
<td>7W</td>
</tr>
<tr>
<td>-2558F: C2558</td>
<td>4 cores</td>
<td>15W</td>
</tr>
<tr>
<td>-2758F: C2758</td>
<td>8 cores</td>
<td>20W</td>
</tr>
</tbody>
</table>

*Microsoft Azure Certified. Please see page 44 for complete list.*
Supermicro X11 Single Processor servers with E3-1500 v5 (Skylake-H) series processors provide up to 26% more overall graphics performance than the previous-generation E3-1200 v4 processors. For dense and high-capacity media processing over the net, these systems can deliver up to 18 AVC streams or 8 HEVC streams at 1080p 30 frames per second (FPS), or 2 HEVC streams at 4K 30 FPS.

### Intel® Xeon® E3-1500 v5

**Pro Graphics P580 GTe4 (FCBGA 1440)**

Supermicro X11 Single Processor servers with E3-1500 v5 (Skylake-H) series processors provide up to 26% more overall graphics performance than the previous-generation E3-1200 v4 processors. For dense and high-capacity media processing over the net, these systems can deliver up to 18 AVC streams or 8 HEVC streams at 1080p 30 frames per second (FPS), or 2 HEVC streams at 4K 30 FPS.

### SYS-5019S-TN41U • 9.8" depth

- Single socket FCBGA 1440 supports Intel® Xeon® processor E3-1585 v5, 8 Threads
- Intel® C236 chipset
- 1x 3.5" or 4x 2.5" HDD
- Up to 32GB Unbuffered ECC SO-DIMM DDR4 2133MHz; 2 DIMM slots
- 1 PCI-E 3.0 x16, 1 Mini-PCI-E with mSATA, 1 M.2 (M Key, 2242/2280)

### X11 Intel® Core™ i9, i7, i5, i3, 8th/9th Gen Single Processor

**Up to 6 cores with Q370 Chip Set (Coffee-Lake, FCBGA 1151)**

Supermicro single processor X11 designs feature the Intel® B360/Q370/H310 chipset which support the Intel® 8th Generation Core™ i7/i5/i3 processor family. With outstanding features that include up to 64GB non-ECC fast DDR4 DRAM in 4 DIMMs, USB 3.0/USB 3.1, PCI-E 3.0 M.2, and SATA 3.0 (6Gbps) HDD. With support for next generation graphics controller, 4K HD graphics resolution and multiple displays. Designed with performance, reliability, manageability and long life in mind, Supermicro’s single processor motherboards are the perfect solution for a variety of multi-tasking, heavy workload applications.

### SYS-E300-9C Mini-1U • 10" width

- 2 Internal 2.5" fixed drive bays with bracket
- 1 PCI-E 3.0 x16 AOC slot (LP) open slot (space share with top 2.5" drive bay)
- Up to 64GB unbuf. non-ECC SO-DIMM, DDR4-2666Mz; in 2 DIMM slots
- M.2 M key: SATA/PCI-E 3.0 x4, support 2242/2280 length
- M.2 E key: PCI-E 3.0 x1, support 2230 length
- 2x GbE LAN ports, 4 USB 3.1 (2 type A and 2 type C)
The 7th/6th Gen Intel Core processors deliver significant improvements in graphics performance that offers stunning visuals for gaming as well as compelling 4K content creation and media playback via AVX 2.0. Offers enhanced security through AES instructions for faster encryption as well as BIOS/FW protection, new I/O connectivity and multiple independent display capabilities.

**Server Solutions**

**SYS-1019S-M2** Compact 1U • 16.9” depth
- Up to 4 DIMMs, 64 GB of 2400MHz DDR4 UDIMM ECC/NON-ECC
- Intel Xeon E3-1200 v6/v5 & 7th/6th Gen Intel Core i7, i5, i3, Pentium, Celeron processor in LGA1151 | C236
- 2 DP, DVI-I, total 3x independent display
- 4x 3.5” SATA3 hot-swap drive bays
- Intel vPro and AMT
- 2 Gigabit LAN with AMT
- 1 PCI-E 3.0 x16 FH, FL slot
- 7 year life cycle

**SYS-5019S-M2** Compact 1U • 19.85” depth
- Intel C236
  - 4 cores | 80W
  - 4 cores | 80W
  - 4 cores | 80W
  - 4 cores | 80W

**SYS-5029S-TN2** Mini Tower
- Intel Q170
  - 4 cores | 65W
  - 4 cores | 65W
  - 4 cores | 65W
  - 4 cores | 65W

**Motherboard Solutions**

- X11SSQ/L
- X11SSZ-QF
- X11SSZ-TLN4F/F
- X11SSV-Q
- X11SSV-LVDS
**Intel® Atom™ & Intel® Pentium Processors**

*(Apollo Lake)*

Supermicro X11 Generation of Motherboards/Servers support Intel® Atom processor x5-E3900 and Pentium processor N4200 (Formerly Apollo Lake) series system-on-chip (SoC) Processors.

Based on Goldmont architecture and utilizing Intel's industry-leading 14 nm process technology, the Supermicro high density, low-power Motherboard/Server solutions provide great options for value-segment buyers who need basic functionality at an affordable price. The solutions are ideal as IoT Gateway/Edge Computing, that stronger focus on data collection and real-time communication over networks, provide telemetry and usage information helping to drive predictive analytics, even perform inference locally to take actions without latency. Empowers real-time computing in intelligent AIoT applications for retail, industrial and medical, and more.

### Server Solutions

**SYS-E50-9AP-WIFI**

- Built-in Wifi/BT combo module and 2T2R antenna
- IP51 with plastic chassis design for water/dust proof
- Fanless design for increased reliability and cost efficiency
- Fanless design with palm-size dimension

![Intel Atom x5-E3940](image)

4 cores | 9.5W

### Motherboard Solutions

<table>
<thead>
<tr>
<th>Model</th>
<th>Processor</th>
<th>CPU Cores</th>
<th>TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2SAN-LN4-E/C</td>
<td>Pentium™ N4200</td>
<td>4 Cores</td>
<td>6W</td>
</tr>
<tr>
<td>(without heatsink)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NEW!* Microsoft Azure Certified. Please see page 44 for complete list.

SUPERMICRO® Embedded/IoT Building Block Solutions - August 2020
X11 8th Generation Intel® Mobile Core Processor

**Intel® Core™ U-Series multi-chip package (MCP FCBGA 1528)**

Supermicro’s single processor Socket FCBGA1528 MCP feature the Intel® 8th Generation Core™ i7/i5/i3/ Celeron® processor ultra-low-power U-series with 4 Cores/8 threads for balance of power and performance. Outstanding features include up to 64GB of fast DDR4 DRAM in 2 DIMMs, 4 USB 3.1 Gen2, 3 M.2 with B/M/E-key , 1 Nano-SIM Slot, 6 COM ports, 12-24V wide range power input and SATA 3.0 (6Gbps) HDD. Support for next generation graphics controller, 4K HD graphics resolution and 3 displays with LVDS, HDMI and DP++ ports. Ideal for small form factor, energy-efficient, reliability, manageability, fanless and long life applications.

**Fanless Compact Server Solutions**

**SYS-E100-9W-H/E/L/C, 3.5” SBC**

- 8th Gen Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE
- 1 HDMI and 1 Display Port
- 4 USB 3.1 Gen2, 4 USB 2.0, 4 COM (RS-232/422/485), 1 DIO via DB9
- 2 Gigabit Ethernet Ports
- TPM 2.0 onboard
- Up to 64GB Unbuffered non-ECC SO-DIMM,
  - DDR4-2400MHz, in 2 DIMM slots
  - M.2 2242/3042/2280 B-Key (USB 3.0/2.0 x 1, SATA Gen3 x 1) with nano SIM holder for LTE/5G
  - M.2 2230 E-Key (CNVi/PCI-E 3.0 x1/USB2) for WIFI/BT
  - M.2 2242/2280 M-Key (PCI-E 3.0 x4, SATA Gen3 x 1), for SATA/NVMe SSD
  - +12-24V wide range power input
- Lockable 12V DC 60W power adapter
- Fanless Cooling System
- Dimensions: 195 x 44 x 151mm
  (7.68” x 1.73” x 5.94”)

**SYS-E102-9W-C, 3.5” SBC**

- Intel® Celeron® Processor 4305UE. Single Socket FCBGA-1528 supported,
  - CPU TDP support Up to 15W TDP
  - 1 HDMI and 1 Display Port, 4 USB 3.1 Gen2,
  - 4 COM (RS-232/422/485), 1 DIO via DB9
  - 2 Gigabit Ethernet Ports
  - 1 M.2 M-Key, 1 M.2 B-Key with Nano SIM, 1 M.2 E-Key
  - 3.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)
  - Up to 64GB Unbuffered non-ECC SO-DIMM,
  - DDR4-2133MHz, in 2 DIMM slots
  - Single LAN with Intel® Ethernet Controller I210IT
  - Single LAN with Intel® PHY I219LM LAN controller

**Motherboard Solutions**

**X11SWN-H/-E/-L/-C**

- 8th Gen Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE
- Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots
- Dual LAN with Intel® Ethernet Controller i210IT & Intel® PHY I219LM LAN controller
- 3 independent displays, Dual channel 48-bit LVDS, HDMI 1.4, DP++
  - M.2 2242/3042/2280 B-Key (USB3.0/2.0 x 1,SATA Gen3 x 1) with nano SIM holder for LTE/5G
  - M.2 2230 E-Key (CNVi/PCI-E 3.0 x1/USB2) for WIFI/BT
  - M.2 2242/2280 M-Key (PCI-E 3.0 x4,SATA Gen3 x 1), for SATA/NVMe SSD
  - 4 USB 3.1 Gen2 ports (4 rear, Type A), 4 USB 2.0 ports (4 header),
  - 6 COM (2 RS-232/422/485, 4 RS-232)
  - 1 Audio (Line-out/Mic-in), 1 8-bit GPIO header
  - TPM 2.0 onboard

**X11SWN-H/-E/-L/-C-WOHS**

- 8th Gen Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE
- Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots
- Dual LAN with Intel® Ethernet Controller i210IT & Intel® PHY I219LM LAN controller
- 3 independent displays, Dual channel 48-bit LVDS, HDMI 1.4, DP++
  - M.2 2242/3042/2280 B-Key (USB3.0/2.0 x 1,SATA Gen3 x 1) with nano SIM holder for LTE/5G
  - M.2 2230 E-Key (CNVi/PCI-E 3.0 x1/USB2) for WIFI/BT
  - M.2 2242/2280 M-Key (PCI-E 3.0 x4,SATA Gen3 x 1), for SATA/NVMe SSD
  - 4 USB 3.1 Gen2 ports (4 rear, Type A), 4 USB 2.0 ports (4 header),
  - 6 COM (2 RS-232/422/485, 4 RS-232)
  - 1 Audio (Line-out/Mic-in), 1 8-bit GPIO header
  - TPM 2.0 onboard

*Microsoft Azure Certified. Please see page 44 for complete list.*
**X10 Intel® Xeon® E5-2600 v4/v3 Processors**

*Dual Processor System Solutions (Broadwell)*

**Broadwell Support**

All X10 Dual Processor motherboards now support Intel’s latest E5-2600 v4 series (Broadwell) processor for even faster performance. Coupled with the long life C612 PCH that provides up to 7 years of extended availability, the E5-2600 v4 processor brings unparalleled performance, efficiency, scalability, and flexibility to handle the most demanding of embedded and embedded cloud workloads for years to come.

**NVMe Capability**

Many X10 models now support U.2 (NVMe) storage capabilities for unmatched performance (throughput and latency), true hot-swap capability, and cost-effectiveness that beats using traditional add-on card based flash storage solutions.

**Server Solutions**

**Intel® Xeon® E5-2600**  
22 cores | 145W

**SYS-6018R-MD Compact • 16.9”**

- Short-Depth Chassis for X11/X10 DP Solutions
- 500W Platinum Level High-efficiency Power Supply
- 1x 3.5” or 4x 2.5” HDD
- 4x 40x56mm PWM fans
- 2 Full-Height I/O Expansion slot

**Motherboard Solutions**

**X10DRD-i(N)T**  
22 cores | 145W

- Dual E5-2600 v4/v3 CPUs up to 145W
- 8 DIMM DDR4 2133MHz (Up to 1TB)
- 10 SATA 3.0 HDD/SSD ports
- 4 PCI-E 3.0 x16 + 3 PCI-E 3.0 x8 + 1 PCI-E 3.0 x4 in x8 + 1 PCI-E 2.0 x4 in x8
- 7 USB 3.0, 2 SuperDOM, TPM support
- 13.05” x 10.5” ATX Form Factor
- 10 SATA3 HDD/SSD ports, Optional dual NVMe Ports (*-N Option*)

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*Supermicro® Embedded/IoT Building Block Solutions - August 2020*
## IoT/Embedded

### IPS1 Fanless PC

**Embedded/IoT Building Block Solutions** - August 2020

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-E50-9AP</th>
<th>SYS-E50-9AP-L</th>
<th>SYS-E50-9AP-N5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Intel® Atom™ Processor x5-E3940</td>
<td>Intel® Atom™ Processor x5-E3940</td>
<td>Intel® Atom™ Processor x5-E3940</td>
</tr>
<tr>
<td><strong>Key Applications</strong></td>
<td>IoT Gateway</td>
<td>Commercial Appliance</td>
<td>Support Cloud-based Management Software</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>IPS1 with plastic chassis design for water/dust proof</td>
<td>Palm-size for space-limited environment</td>
<td>Built-in Antenna</td>
</tr>
<tr>
<td><strong>Serverboard</strong></td>
<td>SUPER® A2SAP-H</td>
<td>SUPER® A2SAP-H</td>
<td>SUPER® A2SAP-H</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td><strong>System Memory (Max.)</strong>*</td>
<td>Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3L-1866MHz, in 1 DIMM socket</td>
<td>Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3L-1866MHz, in 1 DIMM socket</td>
<td>Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3L-1866MHz, in 1 DIMM socket</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 Full size Mini-PCIe; 1 Half size Mini-PCIe; 1 M.2 B-Key 2242; 1 M.2 E-Key 2230</td>
<td>1 Half size Mini-PCIe; 1 M.2 B-Key 2242</td>
<td>1 Half size Mini-PCIe; 1 M.2 B-Key 2242; 1 M.2 E-Key 2320</td>
</tr>
<tr>
<td><strong>Onboard Storage Controller</strong></td>
<td>1 M.2 B-Key 2242 for SATA SSD, 1 SATA 3.0 for 7mm 2.5&quot; SATA SSD</td>
<td>1 M.2 B-Key 2242 for SATA SSD</td>
<td>1 M.2 B-Key 2242 for SATA SSD, 1 SATA 3.0 for 7mm 2.5&quot; SATA SSD</td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>Dual LAN with Intel® I210-IT, 2 USB3.0, 2 USB2.0, 2 COM (RS-232/422/485), TPM2.0 onboard</td>
<td>Dual LAN with Intel® I210-IT, 2 USB3.0</td>
<td>5 LAN with Intel® I210-IT, 2 USB3.0, 2 USB2.0, 1 COM, TPM2.0 onboard</td>
</tr>
<tr>
<td><strong>VGA/Audio</strong></td>
<td>2 HDMI</td>
<td>1 HDMI</td>
<td>2 HDMI</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Drive Bays</strong></td>
<td>1 SATA 3.0 for 7mm 2.5&quot; SATA SSD</td>
<td>N/A</td>
<td>1 SATA 3.0 for 7mm 2.5&quot; SATA SSD</td>
</tr>
<tr>
<td><strong>Peripheral Bays</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>Lockable 12V DC 40W power adapter</td>
<td>Lockable 12V DC 40W power adapter</td>
<td>Lockable 12V DC 40W power adapter</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>Fanless</td>
<td>Fanless</td>
<td>Fanless</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>1U Box; Enclosure: 148 x 44 x 118mm (5.82&quot; x 1.72&quot; x 4.64&quot;)</td>
<td>Package: 241 x 140 x 203mm (9.5&quot; x 5.5&quot; x 8&quot;)</td>
<td>Gross Weight: 3.52lbs (1.6kg)</td>
</tr>
</tbody>
</table>

* Please check with your Supermicro sales representative and website for compatibility and configuration details

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Supermicro® Embedded/IoT System Solutions

[Image: We Power the Cloud]

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### Embedded/IoT System Solutions

**IoT/Embedded**
- Supports Wireless communication
- Compact Embedded Box PC
- Extended Temperature Fanless 3.5" SBC
- 8th Gen Intel® Core™ i Processor Edge Computing

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**Model**
- **SYS-E50-9AP-Wifi**
- **SYS-E102-9AP-L**
- **SYS-E100-9AP**
- **SYS-E300-9C**

**Processor Support**
- Intel® Atom® processor x5-E3940
- Intel® Atom® Processor x5-E3930
- Intel® Atom® Processor x5-E3940
- Intel® Atom® Processor x5-E3940

**Key Applications**
- IoT Gateway
- Commercial Appliance
- Embedded Applications

**Outstanding Features**
- Built-in Antenna and Dual band Wireless/Bluetooth combo module
- IP51 with plastic chassis design for water/dust proof
- Cable-less design for easy maintenance
- Fanless design with palm-size dimension
- Support Cloud-based Management Software

**Serverboard**
- SUPER® A2SAP-H
- SUPER® A2SAN-E-WOHS
- SUPER® A2SAN-L
- SUPER® X11SCV-Q

**Chipset**
- System on Chip
- System on Chip
- System on Chip
- Intel® Q370 chipset

**System Memory (Max.)***
- Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3L-1866MHz, in 1 DIMM socket
- Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3L-1866MHz, in 1 DIMM slot
- Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2666MHz, in 2 DIMM slots

**Expansion Slots**
- 1 Full size Mini-PCIe; 1 Half size Mini-PCIe; 1 M.2 B-Key 2242
- 1 Full size Mini-PCI-E; 1 M.2 2280 B-Key
- 1 Full size Mini-PCI-E; 1 M.2 2280 B-Key
- 1 PCI-E 3.0 x16 AOC slot (LP)and M.2 M KEY: PCI-E 3.0 x1, support 2230/2242 length; M.2 E KEY: PCIe 3.0 x1, support 2230 length

**Onboard Storage Controller**
- 1 M.2 B-Key 2242 for SATA SSD, 1 SATA 3.0 for 7mm 2.5" SATA SSD
- 1 M.2 B-Key 2280 for SATA SSD, 1 SATA 3.0 for 7mm 2.5" SATA SSD
- Dual LAN with Intel® I210-IT, 2 USB3.0, 1 M.2 2280 B-Key for SATA SSD
- Dual LAN with Intel® I210-IT, 2 USB3.0, 4 COM (RS-232/422/485), 1 DIO via DB9, TPM2.0 onboard

**Connectivity**
- Dual LAN with Intel® I210-IT, 2 USB3.0, 1M.2 2280 B-Key
- Dual LAN with Intel® I210-IT, 2 USB3.0, 4 COM (RS-232/422/485), 1 DIO via DB9, TPM2.0 onboard
- 2x1GbE LAN with AMT, 4 USB 3.1 (2 type A & 2 type C in rear), HD Audio(Mic In/Line Out)
- 1 DVI-I, 1HDMI, 1DP(DisplayPort), 3 Independent displays; 1 eDP(Embedded DisplayPort)

**VGA/Audio**
- 2 HDMI
- 1 VGA 1 HDMI
- 1 VGA 1 HDMI
- 2x 2.5" fixed drive bay

**Management**
- SuperDoctor® 5, Watchdog
- SuperDoctor® 5, Watchdog
- SuperDoctor® 5, Watchdog
- AMT, NMI, SuperDoctor® 5, vPro, Watchdog

**Drive Bays**
- 1 SATA 3.0 for 7mm 2.5" SATA SSD
- 1 SATA 3.0 for 7mm 2.5" SATA SSD
- N/A
- 2x 2.5" fixed drive bay

**Peripheral Bays**
- N/A
- N/A
- N/A
- N/A

**Power Supply**
- Lockable 12V DC 40W power adapter
- Lockable 12V DC 40W power adapter
- Lockable 12V DC 40W power adapter
- 2x 4cm high performance PWM fans; optional for 1x fan to add-on card area cooling

**Cooling System**
- Fanless
- Passive CPU heat sink and 1x 40mm chassis fans
- Fanless
- 2x4cm high performance PWM fans; optional for 1x fan to add-on card area cooling

**Form Factor**
- 1U Box; Enclosure: 148 x 44 x 118mm (5.82" x 1.72" x 4.64")
- 1U Box; Enclosure: 195 x 44 x 151mm (7.68" x 1.73" x 5.94")
- 1U Box; Enclosure: 195 x 44 x 151mm (7.68" x 1.73" x 5.94")
- 254 x 43 x 226mm (10" x 1.7" x 8.9")

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* Please check with your Supermicro sales representative and website for compatibility and configuration details
** Only available for NA and EU region. For other regions, please contact your sale representatives
**Embedded/IoT System Solutions**

**NEW! Embedded High Density Fanless Intel® Xeon® D Edge Computing System**

**NEW! Embedded Fanless Deverton Edge Computing System**

**NEW! Embedded Building Block SBC**

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### MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-E302-9D</th>
<th>SYS-E302-9A</th>
<th>SYS-E102-9W-C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Intel® Xeon® Processor D-2123IT, CPU TDP support Up to 60W TDP † BIOS version 2.0 or above is required</td>
<td>Intel® Atom® Processor C3558, Single Socket FCBGA-1310 supported, CPU TDP support Up to 16W TDP † BIOS version 2.0 or above is required</td>
<td>Intel® Celeron® Processor 4305UE, Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP † BIOS version 2.0 or above is required</td>
</tr>
<tr>
<td><strong>Key Applications</strong></td>
<td>• IoT Edge Computing Industrial Automation, Retail, Smart Medical Expert Systems • Artificial Intelligence (AI) on Edge, Machine Learning (ML) • FireWall Applications Networking Appliance</td>
<td>• IoT Edge Computing Retail, Smart Medical Expert Systems Networking Appliance • Industrial Automation &amp; Control • Embedded IoT Gateway</td>
<td>• Industrial Automation, Retail, Smart Medical Expert Systems • Kiosk, Interactive Information System • Digital Signage Retail, Smart Medical Expert Systems</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>• Supports up to 4C high Density Intel® Xeon® SoC processor for edge network computing High Memory Bandwidth • Supports 4 DDR4 channel DIMMs (ECC RDIMM or ECC RDIMM) with up to 2133 MHz memory speed • Max memory capacity up to 512GB on LRDIMM • 8 LAN ports support (2 x 10G SFP+, 2 x 10GBase-T, 4 x 1GbE) • 2 USB 3.0 2x 2.5&quot; SATA drives</td>
<td>• 7 year life cycle • IPMI 2.0 management with dedicated LAN • Fanless compact design</td>
<td>• 1 HDMI and 1 Display Port • 4 USB 3.1 4 COM (RS-232/422/485), 1 DIO via DB9 2 Gigabit Ethernet Ports • 1 M.2 Key, 1 M.2 B-key with Nano SIM</td>
</tr>
<tr>
<td><strong>Serverboard</strong></td>
<td>SUPER® X11SDV-4C-TP8F-01</td>
<td>SUPER® A2SDi-4C-HLN4F</td>
<td>SUPER® X115WN-C</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>System on Chip chipset</td>
<td>System on Chip chipset</td>
<td>System on Chip chipset</td>
</tr>
<tr>
<td><strong>System Memory (Max.)</strong></td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x8</td>
<td>1x M.2 M Key 2242/2280 (PCI-E 3.0 x2)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Onboard Storage Controller</strong></td>
<td>SoC controller for 2 SATA3 ports; RAID 0,1</td>
<td>SoC controller for 2x SATA 3.0</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>2x 10G SFP+, 2x 10GbE LAN, 4x 1GbE LAN, 1x dedicated IPMI LAN, 2 USB 3.0</td>
<td>4x 1GbE, 1x dedicated IPMI LAN, 2 USB 2.0</td>
<td>Single LAN with Intel® Ethernet Controller I210IT Single LAN with Intel® PHY I219LM LAN controller</td>
</tr>
<tr>
<td><strong>VGA/Audio</strong></td>
<td>Aspeed AST2500 BMC</td>
<td>Aspeed AST2400 BMC</td>
<td>Intel® UHD Graphics 610</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>IPMI2.0, KVM with dedicated LAN, Watchdog</td>
<td>IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Drive Bays</strong></td>
<td>2x 2.5&quot; fixed drive bay with bracket</td>
<td>2x 2.5&quot; 7mm fixed drive bay</td>
<td>1 SATA 3.0 for 2.5&quot; 7mm SATA SSD/SDD 1 M.2 2242/3042/2280 B-Key (USB3.0/2.0x 1, SATA Gen3x 1) 1 M.2 2222/2280 M-Key (PCI-E 3.0x4, SATA Gen3x 1), NVMe support</td>
</tr>
<tr>
<td><strong>Peripheral Bays</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>150W 12V Lockable DC Power Adapter (Optional: 180W 12V Lockable DC Power Adapter)</td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>Fanless</td>
<td>Fanless</td>
<td>Passive CPU Heat Sink and 1x 40mm Chassis Fan</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>295 x 76 x 206mm (11.6&quot; x 3&quot; x 8.1&quot;)</td>
<td>295 x 76 x 206mm (11.6&quot; x 3&quot; x 8.1&quot;)</td>
<td>190 x 44 x 120mm (7.48&quot; x 1.72&quot; x 4.72&quot;)</td>
</tr>
</tbody>
</table>

*Please check with your Supermicro sales representative and website for compatibility and configuration details*
### Embedded/IoT Building Block Solutions - August 2020

**NEW!**

**Embedded Compact Fanless Box PC**

#### MODEL

<table>
<thead>
<tr>
<th></th>
<th>SYS-E100-9W-H</th>
<th>SYS-E100-9W-E</th>
<th>SYS-E100-9W-L</th>
<th>SYS-E100-9W-C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>8th Generation Intel® Core™ i7-8665U Processor. Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP</td>
<td>8th Generation Intel® Core™ i5-8365U Processor. Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP</td>
<td>8th Generation Intel® Core™ i3-8145U Processor. Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP</td>
<td>Intel® Celeron® Processor 4305U. Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP</td>
</tr>
<tr>
<td><strong>Key Applications</strong></td>
<td>• Industrial Automation, Retail, Smart Medical Expert Systems</td>
<td>• Industrial Automation, Retail, Smart Medical Expert Systems</td>
<td>• Industrial Automation, Retail, Smart Medical Expert Systems</td>
<td>• Industrial Automation, Retail, Smart Medical Expert Systems</td>
</tr>
<tr>
<td></td>
<td>• RIO, Interactive information system</td>
<td>• Digital Signage</td>
<td>• Digital Signage</td>
<td>• Digital Signage</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>• 1 HDMI and 1 Display Port</td>
<td>• 1 HDMI and 1 Display Port</td>
<td>• 1 HDMI and 1 Display Port</td>
<td>• 1 HDMI and 1 Display Port</td>
</tr>
<tr>
<td></td>
<td>• 2 Gigabit Ethernet Ports</td>
<td>• 2 Gigabit Ethernet Ports</td>
<td>• 2 Gigabit Ethernet Ports</td>
<td>• 2 Gigabit Ethernet Ports</td>
</tr>
<tr>
<td></td>
<td>• M.2 M-Key, M.2 B-Key with Nano SIM, M.2 E-Key</td>
<td>• M.2 M-Key, M.2 B-Key with Nano SIM, M.2 E-Key</td>
<td>• M.2 M-Key, M.2 B-Key with Nano SIM, M.2 E-Key</td>
<td>• M.2 M-Key, M.2 B-Key with Nano SIM, M.2 E-Key</td>
</tr>
<tr>
<td><strong>Serverboard</strong></td>
<td>SUPERK X11S5W-H-WOHS</td>
<td>SUPERK X11S5W-E-WOHS</td>
<td>SUPERK X11S5W-L-WOHS</td>
<td>SUPERK X11S5W-C-WOHS</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>System on Chip chipset</td>
<td>System on Chip chipset</td>
<td>System on Chip chipset</td>
<td>System on Chip chipset</td>
</tr>
<tr>
<td><strong>System Memory (Max.)</strong></td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>Key: B-Key, M-Key, E-Key</td>
<td>Key: B-Key, M-Key, E-Key</td>
<td>Key: B-Key, M-Key, E-Key</td>
<td>Key: B-Key, M-Key, E-Key</td>
</tr>
<tr>
<td></td>
<td>M.2 2242/3042/2280</td>
<td>M.2 2242/3042/2280</td>
<td>M.2 2242/3042/2280</td>
<td>M.2 2242/3042/2280</td>
</tr>
<tr>
<td></td>
<td>B-Key (1 USB 3.0/2.0, 1 SATA Gen. 3) with nano SIM holder</td>
<td>B-Key (1 USB 3.0/2.0, 1 SATA Gen. 3) with nano SIM holder</td>
<td>B-Key (1 USB 3.0/2.0, 1 SATA Gen. 3) with nano SIM holder</td>
<td>B-Key (1 USB 3.0/2.0, 1 SATA Gen. 3) with nano SIM holder</td>
</tr>
<tr>
<td><strong>Onboard Storage Controller</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>AMT, SuperDoctor 5, vPro, Watchdog</td>
<td>AMT, SuperDoctor 5, vPro, Watchdog</td>
<td>SuperDoctor 5, Watchdog</td>
<td>SuperDoctor 5, Watchdog</td>
</tr>
<tr>
<td><strong>Drive Bays</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Peripheral Bays</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>Fanless</td>
<td>Fanless</td>
<td>Fanless</td>
<td>Fanless</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>195 x 44 x 159mm (7.68&quot;x1.73&quot;x5.94&quot;)</td>
<td>195 x 44 x 159mm (7.68&quot;x1.73&quot;x5.94&quot;)</td>
<td>195 x 44 x 159mm (7.68&quot;x1.73&quot;x5.94&quot;)</td>
<td>195 x 44 x 159mm (7.68&quot;x1.73&quot;x5.94&quot;)</td>
</tr>
</tbody>
</table>

*Please check with your Supermicro sales representative and website for compatibility and configuration details.

**Only available for NA and EU region. For other regions, please contact your sale representatives.**
### Embedded/IoT System Solutions

**IoT/Embedded**

**IoT Gateway with Intel Quark SoC 2.2W**

**NEW!**

**IoT/Embedded Fanless Compact BOX PC**

**NEW!**

**IoT/Embedded Fanless Compact BOX PC**

**NEW!**

**IoT/Embedded Fanless Compact BOX PC**

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**NEW!**

**IoT Edge Computing**

**NEW!**

**IoT Edge Computing**

**NEW!**

**IoT Edge Computing**

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* Please check with your Supermicro sales representative and website for compatibility and configuration details.

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<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-E100-8Q</th>
<th>SYS-E100-9S</th>
<th>SYS-E100-9S-E</th>
<th>SYS-E100-9S-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Intel Quark™ SoC X1021; CPU TDP support 2.2W</td>
<td>7th Generation Intel® Core™ i7-7600U Processor</td>
<td>7th Generation Intel® Core™ i5-7300U Processor</td>
<td>7th Generation Intel® Core™ i3-7100U Processor</td>
</tr>
<tr>
<td>Key Applications</td>
<td>• IoT Gateway for Smart Factory, Smart Building, Smart Home • Long Life Cycle Support • Intel® Moon Island • Intel® Gateway Solution of Internet of Things (formerly Moon Island) • 2x 1GBe LAN • 2 Mini PCIe sockets, 1 Zigbee socket • 2 USB2.0 (device and host) • 1 RS232, 1 RS485 • Analog Inputs 8 channel 12 bits and Digital I/O 8 bit through screw terminal connector</td>
<td>• IoT Edge Computing • Kiosk, Interactive information system • Environmental Monitor • Core i Fanless Compact Ruggedized Box PC • 1 HDMI and 1 Display Port • 1 USB3.1, 2 USB 3.0, 4 USB 2.0 • 4 COM (RS-232/422/485), 1 DIO via DB9 • 2 Gigabit Ethernet Ports • TPM2.0 onboard</td>
<td>• IoT Edge Computing • Kiosk, Interactive information system • Environmental Monitor • Core i Fanless Compact Ruggedized Box PC • Support Cloud-based Management Software • Support Dual Independent Displays by HDMI &amp; DP • Fanless compact design</td>
<td>• IoT Edge Computing • Kiosk, Interactive information system • Environmental Monitor • Core i Fanless Compact Ruggedized Box PC • 2 Gigabit Ethernet Ports • TPM2.0 onboard</td>
</tr>
<tr>
<td>Outstanding Features</td>
<td>SUPER® A15QN</td>
<td>SUPER® X115SN-H-WOHS</td>
<td>SUPER® X115SN-E-WOHS</td>
<td>SUPER® X115SN-L-WOHS</td>
</tr>
<tr>
<td>Serverboard</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td>Chipset</td>
<td>Onboard S12MB DDR3 ECC memory</td>
<td>Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
</tr>
<tr>
<td>System Memory (Max.)*</td>
<td>2x Mini-PCI-E slots and 1x ZigBee module socket</td>
<td>1 Full size Mini-Pcie; 1 M.2 2280 B-Key</td>
<td>1 Full size Mini-Pcie; 1 M.2 2280 B-Key</td>
<td>1 Full size Mini-Pcie; 1 M.2 2280 B-Key</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>Micro SDHC up to 32GB slot</td>
<td>1 M.2. 2280 B-Key for SATA SSD</td>
<td>1 M.2 2280 B-Key for SATA SSD</td>
<td>1 M.2 2280 B-Key for SATA SSD</td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>Dual LAN with Intel®PHY I219LM, 1 USB3.1, 2 USB3.0, 4 USB2.0, 4 COM (RS-232/422/485), 1 DIO via DB9, TPM2.0 onboard</td>
<td>Dual LAN with Intel®PHY I219LM, 1 USB3.1, 2 USB3.0, 4 USB2.0, 4 COM (RS-232/422/485), 1 DIO via DB9, TPM2.0 onboard</td>
<td>Dual LAN with Intel®PHY I219LM, 1 USB3.1, 2 USB3.0, 4 USB2.0, 4 COM (RS-232/422/485), 1 DIO via DB9, TPM2.0 onboard</td>
</tr>
<tr>
<td>Connectivity</td>
<td>2x 1GBe LAN, 2 USB2.0 (device and host), RS485 &amp; Analog Inputs 8 channel 12 bits &amp; Digital I/O 8 bit through screw terminal connector, 1 RS232</td>
<td>1 DisplayPort, 1 HDMI</td>
<td>1 DisplayPort, 1 HDMI</td>
<td>1 DisplayPort, 1 HDMI</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>N/A</td>
<td>1 DisplayPort, 1 HDMI</td>
<td>1 DisplayPort, 1 HDMI</td>
<td>1 DisplayPort, 1 HDMI</td>
</tr>
<tr>
<td>Management</td>
<td>Watchdog</td>
<td>AMT, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Peripheral Bays</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Lockable 12V DC 15W power adapter (international outlet support)</td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
<td>Lockable 12V DC 60W power adapter</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Fanless</td>
<td>Fanless</td>
<td>Fanless</td>
<td>Fanless</td>
</tr>
<tr>
<td>Form Factor</td>
<td>• IOT Gateway; Enclosure: 135 x 33 x 109mm (5.3” x 1.3” x 4.3”) • Package: 287 x 69 x 201mm (11.3” x 2.7” x 7.9”) • Gross Weight: 1.8lbs (0.82kg) • Net Weight: 0.9lbs (0.41kg)</td>
<td>1U Box; Enclosure: 195 x 44 x 151mm (7.68” x 1.73” x 5.94”) • Package: 241 x 140 x 203mm (9.5” x 5.5” x 8”) • Net Weight: 2.65lbs (1.2kg)</td>
<td>1U Box; Enclosure: 195 x 44 x 151mm (7.68” x 1.73” x 5.94”) • Package: 241 x 140 x 203mm (9.5” x 5.5” x 8”) • Net Weight: 2.65lbs (1.2kg)</td>
<td>1U Box; Enclosure: 195 x 44 x 151mm (7.68” x 1.73” x 5.94”) • Package: 241 x 140 x 203mm (9.5” x 5.5” x 8”) • Net Weight: 2.65lbs (1.2kg)</td>
</tr>
</tbody>
</table>

* Please check with your Supermicro sales representative and website for compatibility and configuration details.
<table>
<thead>
<tr>
<th>Model</th>
<th>SYS-E300-9A-16CN8TP</th>
<th>SYS-E300-9A-4CN10P</th>
<th>SYS-E300-9A-8CN10P</th>
<th>SYS-E300-9A-4CN8</th>
<th>SYS-E300-9A-8CN8</th>
<th>SYS-E300-9A-4C</th>
<th>SYS-E300-9A-8C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Intel Atom™ Processor Denverton C3958, 16 Cores, 31W, 2.0 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 8 Cores, 16W, 2.2 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 4 Cores, 16W, 2.2 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 8 Cores, 25W, 2.2 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 4 Cores, 25W, 2.2 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 8 Cores, 25W, 2.2 GHz</td>
<td>Intel Atom™ Processor Denverton C3558, 4 Cores, 25W, 2.2 GHz</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
<td>Best Performance per Watt 7 year life cycle IPMI 2.0 management with dedicated LAN</td>
</tr>
<tr>
<td><strong>Serverboard</strong></td>
<td>SUPER® A2SDi-16C-TP8F</td>
<td>-4CN10P: SUPER® A2SDV-4C-LN10PF</td>
<td>-4CN8: SUPER® A2SD-8C-LN8F</td>
<td>-4CN8: SUPER® A2SD-8C-LN8F</td>
<td>-4CN8: SUPER® A2SD-8C-LN8F</td>
<td>-8C: SUPER® A2SD-8C-HLN4F</td>
<td>-8C: SUPER® A2SD-8C-HLN4F</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td>*<em>System Memory (Max.)</em></td>
<td>Up to 64GB Unbuffered ECC/Non-ECC SO-DIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC DDR4-2400MHz, Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI Express 3.0 x4 AOC slot (LP), 1 M.2(M Key for SSD 2242/80, PCI-E/ SATA3.0), 1 Mini-PCI-E /w mSATA Half Size</td>
<td>-4CN10P: 1 PCI Express 3.0 x2 AOC slot (LP) when SSD isn't populated, 1 M.2 B Key 3042/2280(PCI-E 3.0 x2)</td>
<td>-8CN8: 1x PCI Express 3.0 x4 AOC slot (LP) when only 1 SSD populated, 1 M.2 B Key 3042/2280(PCIE 3.0 x2)</td>
<td>-8CN8: 1x PCI Express 3.0 x4 AOC slot (LP) when only 1 SSD populated, 1 M.2 B Key 3042/2280(PCIE 3.0 x2)</td>
<td>-8CN8: 1x PCI Express 3.0 x4 AOC slot (LP) when only 1 SSD populated, 1 M.2 B Key 3042/2280(PCIE 3.0 x2)</td>
<td>-8CN8: 1x PCI Express 3.0 x4 AOC slot (LP) when only 1 SSD populated, 1 M.2 B Key 3042/2280(PCIE 3.0 x2)</td>
<td>-8CN8: 1x PCI Express 3.0 x4 AOC slot (LP) when only 1 SSD populated, 1 M.2 B Key 3042/2280(PCIE 3.0 x2)</td>
</tr>
<tr>
<td><strong>Onboard Storage Controller</strong></td>
<td>SoC controller for 2x SATA3.0</td>
<td>SoC controller for 3x SATA3.0</td>
<td>SoC controller for 4x SATA3.0</td>
<td>SoC controller for 4x SATA3.0</td>
<td>SoC controller for 4x SATA3.0</td>
<td>SoC controller for 4x SATA3.0</td>
<td>SoC controller for 4x SATA3.0</td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>2x 1GbE RJ45 and 2x 1G SFP, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>2x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>4x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>4x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>4x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>4x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
<td>4x 1GbE, 1 dedicated IPMI LAN, 2 USB3.0, Optional Console port by request</td>
</tr>
<tr>
<td><strong>VGA/Audio</strong></td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
<td>OOB, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
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<td>OOB, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Drive Bays</strong></td>
<td>2x 2.5&quot; fixed drive bay: one on brackets, one on base mount. (1x 2.5&quot; fixed drive bay when AOC area is occupied.)</td>
<td>1x 2.5&quot; fixed drive bay when AOC area is occupied.</td>
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</tr>
<tr>
<td><strong>Peripheral Bays</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
<td>Lockable 12V DC 84W power adapter</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>2x 40x28mm 4-PIN PWM Fan(FAN-0065L4, 13K RPM)</td>
<td>1x 40x28mm 4-PIN PWM Fan(FAN-0065L4, 13K RPM), Optional 1x Fan by request</td>
<td>1x 40x28mm 4-PIN PWM Fan(FAN-0065L4, 13K RPM), Optional 1x Fan by request</td>
<td>1x 40x28mm 4-PIN PWM Fan(FAN-0065L4, 13K RPM), Optional 1x Fan by request</td>
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</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>254 x 43 x 226mm (10&quot; x 1.7&quot; x 8.9&quot;)</td>
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<td>254 x 43 x 226mm (10&quot; x 1.7&quot; x 8.9&quot;)</td>
</tr>
</tbody>
</table>

* Please check with your Supermicro sales representative and website for compatibility and configuration details.
### Embedded

**Intel® Atom™ Processor Denverton C3958, SoC, 16 Cores, 31W**
- **Front I/O, Short Depth Server**

**Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores**
- **Front I/O, Short Depth Server**

**Intel® Atom™ Processor Denverton C3850, SoC, 12 Cores**
- **Rear I/O, Short Depth Server**
- **support QAT**

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### Embedded/IoT System Solutions

#### MODEL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-5019A-FN5T</th>
<th>SYS-5019A-FTN4</th>
<th>SYS-5019A-12TN4</th>
<th>SYS-5019A-FTN10P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>Intel® Atom™ Processor Denverton C3958, SoC, 16 Cores, 31W</td>
<td>Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores, 25W</td>
<td>Intel® Atom™ Processor Denverton C3850, SoC, 12 Cores</td>
<td>Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores</td>
</tr>
</tbody>
</table>
| Key Applications | • Network Security Appliance  
• Edge Computing Server  
• Virtualization Server | • Network Security Appliance  
• Edge Computing Server  
• Virtualization Server | • Virtual Router  
• FireWall Applications  
• Virtualization  
• Low Power, Low Cost Applications | • Edge Computing Server  
• Virtualization Server  
• Network Security Appliance | |
| Outstanding Features | **Embedded** Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores, 25W  
• QAT up to 20Gbps crypto + 20Gbps compression  
• Quick Assist Technology | **Embedded** Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores  
• Support QAT | **Embedded** Intel® Atom™ Processor Denverton C3850, SoC, 12 Cores, 25W  
• Support QAT | **Embedded** Intel® Atom™ Processor Denverton C3758, SoC, 8 Cores  
• Support QAT | |
| Serverboard | SUPER® A2SDV-16C-TLN5F | SUPER® A25Di-8C-HLN4F | SUPER® A25Di-LN4F | SUPER® A2SDV-8C-LN10F |
| Chipset | System on Chip | System on Chip | System on Chip | System on Chip |
| System Memory (Max.)* | Up to 256GB Registered ECC DDR4-2400MHz or 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz; in 4 DIMM slots | Up to 256GB Registered ECC DDR4-2400MHz or 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz; in 4 DIMM slots | Up to 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots | Up to 256GB Registered ECC RDIMM, DDR4-2400MHz or 64GB Unbuffered ECC/Non-ECC DDR4-2400MHz, in 4 DIMM slots |
| Expansion Slots | 1 PCI-E 3.0 x8, 1 M-Key 2242/2280, PCI-E 3.0 x2/SATA, 1 B-Key 3042/2280, PCI-E 3.0 x2/SATA/USB | 1 PCI-E 3.0 x4, 1 x M.2 (M key for SSD, 2242/80, PCIe3.0 x2 or SATA3) | 1 PCI-E 3.0 x4, 1 mini-PCIe with mSATA supports (half card only), 1 M.2/M Key for SSD 2242/80, PCIe/SATA3.0) | 1 PCI-E 3.0 x4, M.2 Option for Slot 6 or Slot 7 |
| Connectivity | 4x 10GbE LAN, 1x 1GbE LAN (IPMI shared LAN), 4x USB3.0 | 4x 1GbE LAN, 1 dedicated IPMI LAN, 2x USB 2.0 | 4x 1GbE LAN, 1 dedicated management port, 2 USB3.0 | 4x 1GbE LAN, 1 dedicated management port, 2 USB3.0 |
| VGA/Audio | VGA via BMC | VGA via BMC | VGA via BMC | VGA via BMC |
| Management | IPMI 2.0 | IPMI 2.0 | IPMI 2.0 | IPMI2.0, NMI, SuperDoctor® 5, Watchdog |
| Drive Bays | 1x 3.5” or 2x 2.5” internal drive bays | 1x 3.5” or 4x 2.5” HDD | 1x 3.5” or 4 x 2.5” HDD | 1x 3.5” Internal Drive Bay with 1 Full-height, Half-length PCI 2x 3.5” Internal Drive 2x 2.5” Internal Drive Bay with 1 Full-height, Half-length PCI 4x 2.5” Internal Drive |
| Peripheral Bays | N/A | N/A | N/A | N/A |
| Power Supply | 200W Low Noise AC-DC power supply with PFC | 200W Low Noise AC-DC power supply with PFC | 200W Low Noise AC-DC power supply with PFC | 200W Low Noise AC-DC power supply with PFC |
| Cooling System | 3x 40x28mm 4-PIN PWM Fan (FAN-0065L4, 13K RPM) | 2x 40x28mm 4-PIN PWM Fan (FAN-0065L4, 13K RPM), Optional 1x 40x28mm 4-PIN PWM Fan | 2x 40x28mm 4-PIN PWM Fan (FAN-0065L4, 13K RPM) | 2x 40x28mm 4-PIN PWM Fan(FAN-0065L4, 13K RPM) |
| Form Factor | 437 x 43 x 249mm (17.2” x 1.7” x 9.8”) | 437 x 43 x 249mm (17.2” x 1.7” x 9.8”) | 437 x 43 x 249mm (17.2” x 1.7” x 9.8”) | 437 x 43 x 249mm (17.2” x 1.7” x 9.8”) |

* Please check with your Supermicro sales representative and website for compatibility and configuration details.
## Embedded/IoT System Solutions

**NEW!**

**Embedded**

**Intel® Atom™ Processor Denverton C3338 SoC, 2 Cores**

**MODEL** | **SYS-5029A-2TN4** | **SYS-5029AP-TN2**
---|---|---
**Processor Support** | Intel® Atom™ C3338 Denverton Processor, SoC 2 Core, 9W, 1.5 GHz | Intel® Atom™ E3940 Apollo Lake Processor, SoC 4 Cores, 9.5W, 1.6 GHz
**Key Applications** | • 7 Years Life Cycle  
• Compact Cloud Server  
• Edge Computing Device | • Database Processing & Storage  
• High Performance NAS Servers  
• Medical Applications  
• Security Appliance and Video Surveillance  
• Web Server for Small and Medium Business  
• Indoor Kiosk
**Outstanding Features** | • Quad Gigabit Ethernet LAN  
• Up to 4x hot-swap 3.5” SATA3 drives  
• IPMI 2.0 (dedicated LAN) with Virtual Media/KVM over LAN  
• 7 year life cycle | • Up to 4 Hot-Swap 3.5” SATA3 HDD, 2 internal 2.5” fixed HDD and 1 M.2 (M key 2242/80 PCIe 2.0x2)  
• Embedded long life  
• 2x Gigabit LAN ports  
• Quiet Operation
**Serverboard** | SUPER® A2SdL-2C-HLN4 | SUPER® A2SAV
**Chipset** | System on Chip | System on Chip
**System Memory (Max.)** | Up to 128GB RDIMM or 32GB ECC/NON ECC UDIMM, DDR4-1866MHz in 2 DIMM slots | 8GB Unbuffered non-ECC DDR3-1866MHz SO-DIMM in 1 DIMM slot
**Expansion Slots** | 1x PCIe 3.0 x4 (in x4 open ended slot) | 1 PCIe 2.0 x2 in x8 slot, 1 M.2 (M key 2242/80 PCIe 2.0x2), 1 Mini-PCIe with mSATA support
**Onboard Storage Controller** | SoC controller for 6 SATA3 (6 Gbps) ports | Marvel 88SE9230 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SoC controller for 2 SATA3 (6 Gbps) ports
**Connectivity** | 4 x 1GbE LAN, 1 dedicated IPMI LAN, 2 USB2.0 | 2x 1GbE LAN, 2 USB 3.0 (rear), 4 USB 2.0 (2 rear, 2 front, 1 USB 2.0 Type A), 1 Serial Port (RJ45) ALC 888S HD Audio
**VGA/Audio** | VGA via BMC | 1 HDMI, 1 DP, 1 VGA or 1 eDP, Intel® HD Graphic 3 independent displays
**Management** | IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog | vPro and AMT
**Drive Bays** | 4x 3.5” hot-swap drive bay, 2x 2.5” fixed drive bay | 4x 3.5” hot-swap SAS/SATA 2x 2.5” fixed drive bay
**Peripheral Bays** | 1x slim DVD-ROM drive bay (shared with 1 x 2.5” fixed drive bay) | 1x slim DVD-ROM drive bay (shared with 1 x 2.5” fixed drive bay)
**Power Supply** | PWS-251-1H 250W Flex ATX Multi-output Bronze Power Supply | PWS-251-1H 250W Flex ATX Multi-output Bronze Power Supply
**Cooling System** | 1x 12cm rear exhaust fan; | 1x 12cm rear exhaust fan;
**Form Factor** | Mini-Tower; Enclosure: 210 x 240 x 279mm (8.27” x 9.45” x 11”)  
Package: 315 x 350 x 410mm (12.4” x 13.78” x 16.14”) | Mini-Tower; Enclosure: 210 x 240 x 279mm (8.27” x 9.45” x 11”)  
Package: 315 x 350 x 410mm (12.4” x 13.78” x 16.14”)  
Net Weight: 15lbs (6.8kg)

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* Please check with your Supermicro sales representative and website for compatibility and configuration details
## Embedded

**Intel® Xeon® Processor D**

*Compact Front Access 1U 2-Slot, Redundant AC PSUs, and Hot Swappable Fans System*

**NEW!**

**SYS-1019D-4C-RAN13TP+**

- **4C:** Intel® Xeon® Processor D-2123IT, Single Socket FCBGA-2518 supported, CPU TDP support Up to 60W TDP.
- **14CN:** Intel® Xeon® Processor D-2177NT, Single Socket FCBGA-2518 supported, CPU TDP support Up to 105W TDP
- **16C:** Intel® Xeon® Processor D-2183IT

Single Socket FCBGA-2518 supported, CPU TDP support Up to 100W TDP

### Processor Support

- Multi-Access Edge Computing (MEC)
- Centralized/Cloud Radio Access Network (C-RAN)
- Universal Customer Premise Equipment (uCPE)
- Software Defined WAN (SD-WAN)
- Network Function Virtualization (NFV)
- Artificial Intelligence (AI)

### Key Applications

- **SYS-1019D-14CN-RAN13TP+**
- **SYS-1019D-16C-RAN13TP+**

### Outstanding Features

- 2x PCIe 3.0 x16 FHFL
- 4x 10GbE SFP+, 9x GbE (one for management)
- 1x dedicated IPMI LAN, 1x COM via RJ45, 1x VGA Port
- 1x M.2 Key B280/22110, 1x M.2 B-Key 2242, 1x M.2 E-Key 2230
- 2x 2.5" Internal Drive Bay
- 800W AC Redundant PSU, 5x Hot-Swappable Fans

### Serverboard

- **4C:** SUPER® X11SDW-4C-TP13F+
- **14CN:** SUPER® X11SDW-14CN-TP13F+
- **16C:** SUPER® X11SDW-16C-TP13F+

### Chipset

- System on Chip (SoC) System on Chip chipset

### System Memory (Max.)*

- Up to 256GB Registered ECC RDIMM, DDR4-2400MHz; Up to 512GB LRDIMM, DDR4-2400MHz, in 4 DIMM slots

### Expansion Slots

- 2 PCI-E 3.0 x16 FHFL

### Onboard Storage Controller

- SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

### Connectivity

- 4 SFP+, 9 GbE (one for Ethernet management), 1 dedicated IPMI LAN, 1 COM via RJ45, 2 USB 3.0

### VGA/Audio

- VGA via Aspeed AST2500 BMC

### Management

- IPMI 2.0

### Drive Bays

- 2x 2.5" Internal Drive Bays

### Peripheral Bays

- N/A

### Power Supply

- 800W 1U Redundant Power Supply

### Cooling System

- 5x 40x56mm Hot Swappable Counter-Rotation PWM Fans

### Form Factor

- 437 x 43 x 399mm (17.2" x 1.7" x 15.7")

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**NEW!**

**SYS-1019D-4C-RDN13TP+**

- **4C:** Intel® Xeon® Processor D-2123IT, Single Socket FCBGA-2518 supported, CPU TDP support Up to 60W TDP.
- **14CN:** Intel® Xeon® Processor D-2177NT, Single Socket FCBGA-2518 supported, CPU TDP support Up to 105W TDP
- **16C:** Intel® Xeon® Processor D-2183IT

Single Socket FCBGA-2518 supported, CPU TDP support Up to 100W TDP

### Processor Support

- Multi-Access Edge Computing (MEC)
- Centralized/Cloud Radio Access Network (C-RAN)
- Universal Customer Premise Equipment (uCPE)
- Software Defined WAN (SD-WAN)
- Network Function Virtualization (NFV)
- Artificial Intelligence (AI)

### Key Applications

- **SYS-1019D-14CN-RDN13TP+**
- **SYS-1019D-16C-RDN13TP+**

### Outstanding Features

- 2x PCIe 3.0 x16 FHFL
- 4x 10GbE SFP+, 9x GbE (one for management)
- 1x dedicated IPMI LAN, 1x COM via RJ45, 1x VGA Port
- 1x M.2 M-Key 2280/22110, 1x M.2 B-Key 2242, 1x M.2 E-Key 2230
- 2x 2.5" Internal Drive Bay
- 600W DC Redundant PSU, 5x Hot-Swappable Fans

### Serverboard

- **4C:** SUPER® X11SDW-4C-TP13F+
- **14CN:** SUPER® X11SDW-14CN-TP13F+
- **16C:** SUPER® X11SDW-16C-TP13F+

### Chipset

- System on Chip (SoC) System on Chip chipset

### System Memory (Max.)*

- Up to 256GB Registered ECC RDIMM, DDR4-2400MHz; Up to 512GB LRDIMM, DDR4-2400MHz, in 4 DIMM slots

### Expansion Slots

- 2 PCI-E 3.0 x16 FHFL

### Onboard Storage Controller

- SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

### Connectivity

- 4 SFP+, 9 GbE (one for Ethernet management), 1 dedicated IPMI LAN, 1 COM via RJ45, 2 USB 3.0

### VGA/Audio

- VGA via Aspeed AST2500 BMC

### Management

- IPMI 2.0

### Drive Bays

- 2x 2.5" Internal Drive Bays

### Peripheral Bays

- N/A

### Power Supply

- 600W DC48V 1U Redundant Power Supply

### Cooling System

- 5x 40x56mm Hot Swappable Counter-Rotation PWM Fans

### Form Factor

- 437 x 43 x 399mm (17.2" x 1.7" x 15.7")

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*Please check with your Supermicro sales representative and website for compatibility and configuration details

**Only available for NA and EU region. For other regions, please contact your sale representatives
NEW! Embedded Intel® Xeon® D System with 3 PCIe slots and 1+1 800W-48V DC Redundant Power Supply

**MODEL**

<table>
<thead>
<tr>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS-E403-9D-4C-FRN13+</td>
</tr>
<tr>
<td>SYS-E403-9D-14CN-FRN13+</td>
</tr>
<tr>
<td>SYS-E403-9D-16C-FRN13+</td>
</tr>
</tbody>
</table>

**Processor Support**
- **-4C:** Intel® Xeon® D-2123IT Processor, 4 Cores, 8 Threads, 2.2 GHz, 60W
- **-14CN:** Intel® Xeon® D-2177NT Processor, 14 Cores, 28 Threads, 1.9 GHz, 105W
- **-16C:** Intel® Xeon® D-2183IT Processor, 16 Cores, 32 Threads, 2.2 GHz, 100W

**Key Applications**
- Multi-Access Edge Computing (MEC)
- Universal Customer Premise Equipment (uCPE)
- Network Function Virtualization (NFV)
- Edge Computing, Vehicle to Everything Application (C-V2X / V2X)

**Outstanding Features**
- Dual PCIe 3.0 x16 or Dual x8, 1 x16 PCIe 3.0 (FH3/4L)
- Operating Temperature 0°C ~ 50°C (32°F ~ 122°F)
- 800W 240VDC redundant power

**Serverboard**
- **-4C:** SUPER® X11SDW-4C-TP13F+
- **-14CN:** SUPER® X11SDW-14CN-TP13F+
- **-16C:** SUPER® X11SDW-16C-TP13F+

**Chipset**
- System on Chip (SoC)

**System Memory (Max.)*
- Up to 256GB Registered ECC RDIMM, or up to 512GB LRDIMM, DDR4-2400 MHz; in 4 DIMM slots

**Expansion Slots**
- Dual x16 or Dual x8, 1 x16 PCI-E3.0 full height 3/4 length expansion slot

**Onboard Storage Controller**
- SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

**Connectivity**
- 4x SFP+, 9x GbE (one for Ethernet management), 1x dedicated IPMI LAN, 1x COM via RJ45, 2 USB 3.0, 2 USB 2.0

**VGA/Audio**
- VGA via BMC

**Management**
- Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog

**Drive Bays**
- 4x Internal 2.5” Drive Bays

**Peripheral Bays**
- N/A

**Power Supply**
- 800W 240V AC redundant power supply w/ PMBus (94% Efficiency)

**Cooling System**
- 3x 80x80mm PWM redundant fans

**Form Factor**
- 267 x 117 x 406mm (10.5" x 4.62" x 16")

* Please check with your Supermicro sales representative and website for compatibility and configuration details
<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-E403-9P-16C-IP</th>
<th>SYS-E403-9D-16C-IPD2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Intel® Xeon® D-2183IT Processor, 16 Cores, 32 Threads, 2.2 GHz, 100W</td>
<td>Intel® Xeon® D-2183IT Processor, 16 Cores, 32 Threads, 2.2 GHz, 100W</td>
</tr>
<tr>
<td><strong>Key Applications</strong></td>
<td>• Multi-Access Edge Computing (MEC) • Universal Customer Premise Equipment (uCPE) • Network Function Virtualization (NFV) • Edge Computing, Vehicle to Everything Application (C-V2X / V2X)</td>
<td>• 5G Radio Access Network (RAN) • Multi-Access Edge Computing (MEC) • Edge AI Inference • Vehicle to Everything (C-V2X/V2X) • Virtualized Functions and Services</td>
</tr>
<tr>
<td><strong>Outstanding Features</strong></td>
<td>• Operating Temperature -40°C ~ 46°C (-40°F ~ 114.8°F) • GR-487-CORE compliant • Temper-proof design • Noise 71 dBA • 100-240 Vac, Est. Max Power consumption: 1200W (instantaneous)/ 900W (stable) • 620W heater (initiating power: 900W)</td>
<td>• IP65 enclosure for harsh outdoor environments • GR-3108-CORE / GR-487-CORE compliant • Operating Temperature -40°C ~ 50°C (-40°F ~ 122°F) • Cabinet intrusion detection and self-diagnosis • Redundant power supplies and cooling fans</td>
</tr>
<tr>
<td><strong>Serverboard</strong></td>
<td>SUPER® X11SDW-16C-TP13F</td>
<td>SUPER® X11SDW-16C-TP13F+</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>System on Chip (SoC)</td>
<td>System on Chip (SoC)</td>
</tr>
<tr>
<td><strong>System Memory (Max.)</strong>*</td>
<td>Up to 256GB Registered ECC RDIMM, or up to 512GB LRDIMM, DDR4-2400 MHz; in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, or up to 512GB LRDIMM, DDR4-2400 MHz; in 4 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>Dual x16 or Dual x8, One x16 PCI-E3.0 full height 3/4 length expansion slot</td>
<td>Dual x16 or Dual x8, One x16 PCI-E3.0 full height 3/4 length expansion slot</td>
</tr>
<tr>
<td><strong>Onboard Storage Controller</strong></td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td>2x 10GbE, 2x SFP+, 9x GbE (one for Ethernet management), 1x dedicated IPMI LAN, 1xCOM via RJ45, 2 USB 3.0, 2 USB 2.0</td>
<td>4x SFP+, 9x GbE (one for Ethernet management), 1x dedicated IPMI LAN, 1x COM via RJ45, 2 USB 3.0, 2 USB 2.0</td>
</tr>
<tr>
<td><strong>VGA/Audio</strong></td>
<td>VGA via BMC</td>
<td>VGA via BMC</td>
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<tr>
<td><strong>Management</strong></td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td><strong>Drive Bays</strong></td>
<td>4x Internal 2.5&quot; Drive Bays</td>
<td>4x Internal 2.5&quot; Drive Bays</td>
</tr>
<tr>
<td><strong>Peripheral Bays</strong></td>
<td>N/A</td>
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</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>1200W 100-240 VAC, Multi-output power supply w/ PMbus, 80Plus Gold</td>
<td>Design Capacity: -40Vdc to -59Vdc, 900W</td>
</tr>
<tr>
<td><strong>Cooling System</strong></td>
<td>3x 80x80mm PWM redundant fans</td>
<td>3x 80x80mm PWM redundant fans (Server), 6x 80x38mm IP68 Fans (Cabinet)</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>516 x 650 x 450mm (20.3” x 25.6” x 17.7”)</td>
<td>319 x 821 x 258mm (12.56” x 32.31” x 10.16”)</td>
</tr>
</tbody>
</table>

* Please check with your Supermicro sales representative and website for compatibility and configuration details.
## Embedded IoT System Solutions

**Embedded Intel® Xeon® D Box PC**

- **SYS-E403-9D-4C-FN13TP**
- **SYS-E403-9D-12C-FN13TP**
- **SYS-E403-9D-14C-FN13TP**
- **SYS-E403-9D-16C-FN13TP**

### Processor Support

- **4C**: Intel® Xeon® D-2123IT Processor, 4 Cores, 8 Threads, 2.2 GHz, 60W
- **12C**: Intel® Xeon® D-2163IT Processor, 12 Cores, 24 Threads, 2.1 GHz, 75W
- **14C**: Intel® Xeon® D-2173IT Processor, 14 Cores, 28 Threads, 1.7 GHz, 70W
- **16C**: Intel® Xeon® D-2183IT Processor, 16 Cores, 32 Threads, 2.2 GHz, 100W

### Key Applications

- Multi-Access Edge Computing (MEC) Universal Customer Premise Equipment (uCPE)
- Network Function Virtualization (NFV)
- Edge Computing, Vehicle to Everything Application (C-V2X / V2X)

### Outstanding Features

- Dual PCI-E 3.0 x16 or Dual x8, One x16 PCI-E 3.0 (FH3/4L)
- 2x 10GbE, 2x SFP+, 9x GbE (one for management)
- 1x dedicated IPMI LAN, 1x COM via RJ45
- 2x USB 3.0, 2x USB 2.0
- 1x M.2 M-Key 2280/110, 1x M.2 B-Key 3042, 1x M.2 E-Key 2230

### Serverboard

- **4C**: SUPER® X11SDW-4C-TP13F
- **12C**: SUPER® X11SDW-12C-TP13F
- **14C**: SUPER® X11SDW-14C-TP13F
- **16C**: SUPER® X11SDW-16C-TP13F

### Chipset

- System on Chip (SoC)

### System Memory (Max.)*

- Up to 256GB Registered ECC RDIMM, or up to 512GB LRDIMM, DDR4-2133 MHz; in 4 DIMM slots

### Expansion Slots

- Dual x16 or Dual x8, One x16 PCI-E3.0 full height 3/4 length expansion slot

### Onboard Storage Controller

- SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

### Connectivity

- 2x 10GbE, 2x SFP+, 9x GbE (one for Ethernet management), 1x dedicated IPMI LAN, 1x COM via RJ45, 2 USB 3.0, 2 USB 2.0

### VGA/Audio

- VGA via BMC

### Management

- Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog

### Drive Bays

- 4x Internal 2.5” Drive Bays

### Peripheral Bays

- N/A

### Power Supply

- 600W Multi-output power supply, 80Plus Gold

### Cooling System

- 3x 80x80mm PWM redundant fans

### Form Factor

- 267 x 109 x 406mm (10.5” x 4.3” x 16”)

* Please check with your Supermicro sales representative and website for compatibility and configuration details

**Embedded Intel® Xeon® D Box PC**

- **SYS-E403-9D-8CN-FN13TP**
- **SYS-E403-9D-14CN-FN13TP**

### Processor Support

- **8CN**: Intel® Xeon® D-2146NT Processor, 8 Cores, 16 Threads, 2.3 GHz, 80W
- **14CN**: Intel® Xeon® D-2177NT Processor, 14 Cores, 28 Threads, 1.9 GHz, 105W

### Key Applications

- Multi-Access Edge Computing (MEC) Universal Customer Premise Equipment (uCPE)
- Network Function Virtualization (NFV)
- Edge Computing, Vehicle to Everything Application (C-V2X / V2X)

### Outstanding Features

- Dual PCI-E 3.0 x16 or Dual x8, One x16 PCI-E 3.0 (FH3/4L)
- 2x 10GbE, 2x SFP+, 9x GbE (one for management)
- 1x dedicated IPMI LAN, 1x COM via RJ45
- 2x USB 3.0, 2x USB 2.0
- 1x M.2 M-Key 2280/110, 1x M.2 B-Key 3042, 1x M.2 E-Key 2230

### Serverboard

- **8CN**: SUPER® X11SDW-8C-TP13F
- **14CN**: SUPER® X11SDW-14C-NT-TP13F

### Chipset

- System on Chip (SoC)

### System Memory (Max.)*

- Up to 256GB Registered ECC RDIMM, or up to 512GB LRDIMM, DDR4-2667 MHz; in 4 DIMM slots

### Expansion Slots

- Dual x16 or Dual x8, One x16 PCI-E3.0 full height 3/4 length expansion slot

### Onboard Storage Controller

- SoC controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10

### Connectivity

- 2x 10GbE, 2x SFP+, 9x GbE (one for Ethernet management), 1x dedicated IPMI LAN, 1x COM via RJ45, 2 USB 3.0, 2 USB 2.0

### VGA/Audio

- VGA via BMC

### Management

- Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog

### Drive Bays

- 4x Internal 2.5” Drive Bays

### Peripheral Bays

- N/A

### Power Supply

- 600W Multi-output power supply, 80Plus Gold

### Cooling System

- 3x 80x80mm PWM redundant fans

### Form Factor

- 267 x 109 x 406mm (10.5” x 4.3” x 16”)

* Please check with your Supermicro sales representative and website for compatibility and configuration details
<table>
<thead>
<tr>
<th>Model</th>
<th>SYS-E300-9D-8CN8TP</th>
<th>SYS-E301-9D-8CN8TP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor Support</strong></td>
<td>Intel® Xeon® D-2146NT SoC, 2.3GHz, 8 Core, 80W † BIOS version 2.0 or above is required</td>
<td>Intel® Xeon® D-2146NT SoC, 2.3GHz, 8 Core, 80W † BIOS version 2.0 or above is required</td>
</tr>
</tbody>
</table>
| **Key Applications** | - SDN-WAN, vCPE controller box  
- NFV Edge Computing Server  
- Virtualization Server  
- FireWall Applications  
- IoT Edge Computing | - SDN-WAN, vCPE controller box  
- NFV Edge Computing Server  
- Virtualization Server  
- FireWall Applications  
- IoT Edge Computing |
| **Outstanding Features** | - Built in Intel® QAT up to 40Gbps Crypto/Compression  
- Supports up to 8C high Density SKL-D SoC processor for edge network computing  
- High Memory Bandwidth-Supports 4 DDR4 channel DIMMs(ECC LRDIMM or ECC RDIMM) with up to 2133 MHz memory speed , Max memory capacity up to 512GB on LRDIMM  
- 8 LAN ports support(2 x 10G SFP+, 2 x 10Gbase-T, 4 x GbE)  
- Support on board 1 M.2 slot M key for SSD, 2242/80, 1 M.2 B Key for SSD/WAN card, 1 Mini-PCI-E with mSATA Support  
- 2 x USB 3.0, 4 x SATA 3.0 ports(SATA/SAS HDD/SSD) | - Built in Intel® QAT up to 40Gbps Crypto/Compression  
- Supports up to 8C high Density SKL-D SoC processor for edge network computing  
- High Memory Bandwidth-Supports 4 DDR4 channel DIMMs(ECC LRDIMM or ECC RDIMM) with up to 2133 MHz memory speed, Max memory capacity up to 512GB on LRDIMM  
- 8 LAN ports support(2 x 10G SFP+, 2 x 10Gbase-T, 4 x GbE)  
- Support on board 1 M.2 slot M key for SSD, 2242/80, 1 M.2 B Key for SSD/WAN card, 1 Mini-PCI-E with mSATA Support  
- 2 x USB 3.0, 4 x SATA 3.0 ports(SATA/SAS HDD/SSD) |
| **Serverboard** | SUPER® X11SDV-8C-TPBF | SUPER® X11SDV-8C-TPBF |
| **Chipset** | System On Chip | System On Chip |
| **System Memory (Max.)*** | DDR4-2666 512GB LRDIMM or 256GB Registered ECC RDIMM in 4 DIMM slots | DDR4-2666 512GB LRDIMM or 256GB Registered ECC RDIMM in 4 DIMM slots |
| **Expansion Slots** | 1 Mini-PCI-E with mSATA Support, 1 PCI-E 3.0x8 slots, | 1 Mini-PCI-E with mSATA Support, 1 PCI-E 3.0x8 slots, |
| **Onboard Storage Controller** | SoC controller for 4x SATA3 (6 Gbps) ports, (or 2x NVMe U.2 / 8x SATA3 through two Port Eight Intel® PCH SATA 3.0 Ports or Two MINI-SAS HD ports) | SoC controller for 4x SATA3 (6 Gbps) ports, (or 2x NVMe U.2 / 8x SATA3 through two Port Eight Intel® PCH SATA 3.0 Ports or Two MINI-SAS HD ports) |
| **Connectivity** | 2x 10G SFP+, 2x 10GbE LAN, 4x 1GbE LAN, 1x dedicated IPMI LAN, 2 USB 3.0 | 2x 10G SFP+, 2x 10GbE LAN, 4x 1GbE LAN, 1x dedicated IPMI LAN, 2 USB 3.0 |
| **VGA/Audio** | VGA via BMC | VGA via BMC |
| **Management** | IPMI 2.0, KVM with dedicated LAN, Watchdog | IPMI 2.0, KVM with dedicated LAN, Watchdog |
| **Drive Bays** | 1x 2.5” fixed drive bay with bracket. (No 2.5” fixed drive bay when AOC area is occupied.) | Support up to 4x 7mm SSD |
| **Peripheral Bays** | N/A | N/A |
| **Power Supply** | DC power adapter | DC power adapter |
| **Cooling System** | Passive CPU heat sink, 3x 40x28mm 4-PIN PWM Fan for System level (FAN-0100L4, 8.5K RPM) | Passive CPU heat sink, 3x 40x28mm 4-PIN PWM Fan for System level (FAN-0100L4, 8.5K RPM) |
| **Form Factor** | 254 x 43 x 226mm (10” x 1.7” x 8.9") | 254 x 66 x 226mm (10” x 2.6” x 8.9") |

* Please check with your Supermicro sales representative and website for compatibility and configuration details.
### Outstanding Features

- **Networking**
  - Network Security Appliance
  - SD-WAN, vCPE controller box
  - NFV Edge Computing Server
  - Virtualization Server
  - IoT Edge Computing

- **Cooling System**
  - 3x 40x28mm 4-PIN PWM Fan
  - 4x 40x28mm 4-PIN fans (up to 6)
  - 5x 40x40x56 mm Counter-rotating Fans

- **Power System**
  - 350W Multi-output Platinum level power supply

- **Key Applications**
  - Centralized/Cloud Radio Access Network (C-RAN)
  - Universal Customer Premise Equipment (uCPE)
  - Software Defined WAN (SD-WAN)
  - Virtualization (NVF)

- **Management**
  - 1x 2.5" M-Key 2280/110, 1x M.2 B-Key 3042, 1x M.2 E-Key
  - 2x 10GbE/2x RJ45 micro USB

### Processor Support

<table>
<thead>
<tr>
<th>Model</th>
<th>SYS-5019D-FN8TP</th>
<th>SYS-1019D-FHN13TP</th>
<th>SYS-1019D-4C-FHN13TP</th>
<th>SYS-1019D-14CN-FHN13TP</th>
<th>SYS-1019D-16C-FHN13TP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Xeon® D-2146NT SoC, 8 Cores, 16 Threads, 2.3 GHz, 80W</td>
<td>Intel® Xeon® D-2146NT Processor, 8 Cores, 16 Threads, 2.3 GHz, 80W</td>
<td>Intel® Xeon® D-2146NT Processor, 8 Cores, 16 Threads, 2.3 GHz, 80W</td>
<td>Intel® Xeon® D-2146NT Processor, 8 Cores, 16 Threads, 2.3 GHz, 80W</td>
<td>Intel® Xeon® D-2146NT Processor, 8 Cores, 16 Threads, 2.3 GHz, 80W</td>
</tr>
<tr>
<td>Options</td>
<td>-2C: SUPER® X11SDW-12C-TP8F</td>
<td>-2C: SUPER® X11SDW-14C-TP8F</td>
<td>-2C: SUPER® X11SDW-14C-TP8F</td>
<td>-2C: SUPER® X11SDW-14C-TP8F</td>
<td>-2C: SUPER® X11SDW-14C-TP8F</td>
</tr>
<tr>
<td>System Memory</td>
<td>2x 10GB SFP+, 2x 10GbE, 2x SFP+, 1x E1.S(35°C ambient temperature only)</td>
<td>2x 10GB SFP+, 2x 10GbE, 2x SFP+, 1x E1.S(35°C ambient temperature only)</td>
<td>2x 10GB SFP+, 2x 10GbE, 2x SFP+, 1x E1.S(35°C ambient temperature only)</td>
<td>2x 10GB SFP+, 2x 10GbE, 2x SFP+, 1x E1.S(35°C ambient temperature only)</td>
<td>2x 10GB SFP+, 2x 10GbE, 2x SFP+, 1x E1.S(35°C ambient temperature only)</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>4 PCIe3.0 x16 FHFL 2x 10GbE</td>
<td>4 PCIe3.0 x16 FHFL 2x 10GbE</td>
<td>4 PCIe3.0 x16 FHFL 2x 10GbE</td>
<td>4 PCIe3.0 x16 FHFL 2x 10GbE</td>
<td>4 PCIe3.0 x16 FHFL 2x 10GbE</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x External Hot-swap 2.5&quot; Drive Bays, 2x Internal 2.5&quot; Drive Bays</td>
<td>2x External Hot-swap 2.5&quot; Drive Bays, 2x Internal 2.5&quot; Drive Bays</td>
<td>2x External Hot-swap 2.5&quot; Drive Bays, 2x Internal 2.5&quot; Drive Bays</td>
<td>2x External Hot-swap 2.5&quot; Drive Bays, 2x Internal 2.5&quot; Drive Bays</td>
<td>2x External Hot-swap 2.5&quot; Drive Bays, 2x Internal 2.5&quot; Drive Bays</td>
</tr>
</tbody>
</table>

### Key Applications

- **Embedded/IoT System Solutions**
  - Embedded/IoT System Solutions
  - Security Appliance
  - SD-WAN, vCPE controller box
  - NFV Edge Computing Server
  - Virtualization Server
  - Dedicated IPMI Interface

- **Connectivity**
  - 2x External Hot-swap 2.5" Drive Bays

- **Drive Bays**
  - 2x External Hot-swap 2.5" Drive Bays

- **Peripheral Bays**
  - 2x External Hot-swap 2.5" Drive Bays

- **Power Supply**
  - 350W Multi-output Platinum level power supply

- **Cooling System**
  - 40x28mm 4-PIN PWM Fan

- **Ferm Factor**
  - 4x 40x28mm PWM fans (up to 6)

*Please check with your Supermicro sales representative and website for compatibility and configuration details.

**Notes:**
- **SYS-1019D-4C-FHN13TP** is a 4C/8T system.
- **SYS-1019D-14CN-FHN13TP** is a 14CN/28T system.
- **SYS-1019D-16C-FHN13TP** is a 16C/32T system.
- **SYS-1019D-FRN5TP** is a Reduced 400W Platinum level power supply.
- **SYS-1019D-FRN13TP** is a 13TP system.
- **SYS-1019D-FRN5TP** is a 5TP system.
- **SYS-1019D-FRN13TP** is a 13TP system.
- **SYS-1019D-14C-TP8F** is a 14C/28T system.
Embedded/IoT System Solutions

Embedded
Cascade Lake-SP
Compact Front Access 1U WIO System

Embedded
Cascade Lake-SP, Box PC
with 3 PCI-E slots

IoT/Embedded
Intel® Gen 8th Coffee Lake-S,
Compact Mini-Tower,
HD Audio connector

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<table>
<thead>
<tr>
<th>MODEL</th>
<th>SYS-1019P-FHN2T</th>
<th>SYS-E403-9P-FN2T</th>
<th>SYS-5029C-TN2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Support</td>
<td>2nd Generation Intel® Xeon® Scalable Processors (Cascade Lake-SP), Intel® Xeon® Scalable Processors. Single Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP</td>
<td>2nd Generation Intel® Xeon® Scalable Processors (Cascade Lake-SP), Intel® Xeon® Scalable Processors. Single Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP</td>
<td>Intel® 8th/9th Generation Core™ i9/Core™ i7/Core™ i5/ Core™ i3/Pentium®/Celeron® series Processor. Single Socket LGA-1151 (Socket H4) supported, CPU TDP support Up to 65W TDP</td>
</tr>
<tr>
<td>Key Applications</td>
<td>• Multi-Access Edge Computing (MEC) • Centralized/Cloud Radio Access Network (C-RAN) • Universal Customer Premise Equipment (uCPE), • Advanced Network Security Network Function • Virtualization (NFV) Artificial Intelligence (AI) on Edge, Machine Learning (ML) Retail, Smart Medical Expert Systems</td>
<td>• Multi-Access Edge Computing (MEC) Universal • Customer Premise Equipment (uCPE) Network • Function Virtualization (NFV) Artificial Intelligence (AI) on Edge, Machine Learning (ML) Industrial Automation, Retail, Smart Medical Expert Systems</td>
<td>• Surveillance Security Server Compact Storage • Appliance Video processing and streaming Small Medium Business Edge Server</td>
</tr>
<tr>
<td>Outstanding Features</td>
<td>• Intel® Cascade Lake-SP Scalable Processors • 2x PCIe 3.0 x16 FHFL 2x 10 Gigabit Ethernet Ports • 2x USB 3.0, 2x USB • 2.0 x 2.5” Hot Swap SATA3 Drive Bays, 2x 2.5” Internal SATA3 Drive Bays (optional)</td>
<td>• Intel® Cascade Lake-SP Scalable Processors • 1x PCIe 3.0 x16 + 2x PCIe 3.0 x8, or 2x PCIe 3.0 x16 (FH3/4L) • 2x 10 Gigabit Ethernet Ports • 4x USB 3.0, 2x USB 2.0 4x 2.5” Internal Drive Bays</td>
<td>• Up to 64GB Non ECC SO-DIMM DDR4 2666 MHz • TPM chip onboard with jumper disable • Up to 4 Hot-Swap 3.5” SATA3 HDD and 2 internal 2.5” fixed HDD • 4 x USB 3.1 (2 type A &amp; 2 type C in rear) • M.2 Key: M-Key, E-Key for WiFi (or CNVi) card</td>
</tr>
<tr>
<td>Serverboard</td>
<td>SUPER® X11SPW-TF</td>
<td>SUPER® X11SPW-TF</td>
<td>SUPER® X11SCV-Q</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® C622 chipset</td>
<td>Intel® C622 chipset</td>
<td>System on Chip</td>
</tr>
<tr>
<td>System Memory (Max.)*</td>
<td>Up to 1.5TB 3DS ECC RDIMM, DDR4-2933MHz; Up to 1.5TB 3DS ECC RDIMM, DDR4-2933MHz, in 6 DIMM slots</td>
<td>Up to 1.5TB 3DS ECC RDIMM, DDR4-2933MHz; Up to 1.5TB 3DS ECC RDIMM, DDR4-2933MHz, in 6 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2666MHz, in 2 DIMM slots</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>2x PCI-E 3.0 x16 FHFL</td>
<td>1 PCI-E 3.0 x16 + 2 PCI-E 3.0 x8, or 2 PCI-E 3.0 x16 (FH3/4L)</td>
<td>1 PCI-E 3.0 x16(Low Profile); 1 M.2 PCI-E 3.0x4 M Key</td>
</tr>
<tr>
<td>Onboard Storage Controller</td>
<td>Intel® C622 controller; RAID 0,1,5,10</td>
<td>Intel® C622 controller; RAID 0,1,5,10</td>
<td>Intel® Q370 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10X11SCV-Q: Q370 controller for 5 SATA3 ports;RAID 0,1,5,10</td>
</tr>
<tr>
<td>Connectivity</td>
<td>2x 10GbE, 1x Dedicated IPMI LAN, 2 USB 3.0, 2 USB 2.0, 1x COM, 1x VGA</td>
<td>2x 10GbE, 1x Dedicated IPMI LAN, 4 USB 3.0, 2 USB 2.0, 1x COM, 1x VGA</td>
<td>4 USB 3.1 (2 type A &amp; 2 type C in rear)</td>
</tr>
<tr>
<td>VGA/Audio</td>
<td>Aspeed AST2500 BMC</td>
<td>Aspeed AST2500 BMC</td>
<td>Intel® HD Graphics</td>
</tr>
<tr>
<td>Management</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>AMT, NMI, SuperDoctor® 5, vPro, Watchdog</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x 2.5” Hot Swap SATA3 Drive Bays, 2x 2.5” Internal SATA3 Drive Bays (optional)</td>
<td>4x 2.5” Internal Drive Bays</td>
<td>4x 3.5” SATA Hot Swap drive bay and 2x2.5” internal drive bay</td>
</tr>
<tr>
<td>Peripheral Bays</td>
<td>N/A</td>
<td>N/A</td>
<td>1x slim DVD-ROM drive bay</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1U 500W Multi-output power supply w/ PMBus, 80Plus Platinum</td>
<td>600W Multi-output power supply, 80Plus Gold</td>
<td>1U 250W Flex ATX Multi-output Bronze Power Supply, FSP FSP250-50LC</td>
</tr>
<tr>
<td>Cooling System</td>
<td>6x 40x28mm PWM fans</td>
<td>3x 80x38mm PWM hot swap fans</td>
<td>1x 12cm rear exhaust fan; 1x Active CPU cooler</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Short-depth 1U Rackmount 437 x 43 x 381mm (17.2” x 1.7” x 15”)</td>
<td>267 x 109 x 406mm (10.5” x 4.3” x 16”)</td>
<td>210 x 240 x 279mm (8.27” x 9.45” x 11”)</td>
</tr>
</tbody>
</table>

* Please check with your Supermicro sales representative and website for compatibility and configuration details
### Features

**Outstanding Features**

- **Processor Support**
  - Intel® 8th/9th Generation Core™ i9/i7/i5/ Core™i3/Pentium®/Celeron® servers; Intel® Xeon® E processor (Coffee Lake-S) Server; Intel® Xeon® E processor (Coffee Lake-S) Workstation; Single Socket H4 (LGA 1151) supported, CPU TDP support up to 80W TDP.
  - A graphic integrated CPU is required to have onboard video from the DVI and DP ports.

- **Key Applications**
  - DVR/NVR
  - POS
  - Office Server
  - Network Security
  - Security Appliance and Video Surveillance

- **Outstanding Features**
  - Intel® Xeon® processor E-2100 /E-2200 series, 8th/9th Gen. Intel® Core™ i9/17/15/13 Processors
  - Hot Swap SATA3 Drive Bay
  - Intel® C246 controller for 2 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SATA3 Drive Bay
  - Remote management via dedicated IPMI BMC
  - Digital Signage
  - IPMI (Intelligent Platform Management Interface)

**Key Applications**

- Dual GbE LAN, 1 dedicate IPMI, 4 USB3.1 (3 TYPE A + 1 TYPE C) 8x 1GbE LAN, 1 dedicate IPMI LAN
- 2 DP, DVI-I, VGA, Audio
- Intel® C246 chipset

- M.2 (M key), Onboard TPM
- 8th Generation Intel® Core™ i3 Processors, Intel® Xeon® E-2100/2200 processor
- 8x 1GBe, 1 dedicated IPMI LAN
- 1 GVA, 2 USB3.1, 1 USB2.0
- 1 PCIe3.0 x16
- Dual M.2 M key (22110/2280)
- 2x 2.5” Hot Swap, 2x 2.5” Internal SATA3 Drive Bay

**Expansion Slots**

- Intel® C246 controller for 2 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SATA3 Drive Bay
- Intel® C246 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10;
- Intel® C246 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10;
- Dual LAN with Intel® Ethernet Controller I210-AT

**Management**

- Intel® Node Manager, IPMI2.0, NMI, SPM, SSM, SUM, SuperDoctor® S, Watchdog
- 8x 1GbE LAN, 1 dedicated IPMI LAN, 2 USB3.1, 2 USB2.0
- Aspeed AST2500 BMC, Intel® HD Graphics
- IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, SuperDoctor® S, Watchdog
- Intel® C246 chipset

**Peripheral Bays**

- 2x 2.5” hot swap HDD (SATA3)
- 2x 2.5” Hot Swap, 2x 2.5” Internal (SSD recommended)
- 1 PCIe 3.0 x16

**Power Supply**

- Intel® C246 chipset
- Intel® C246 chipset
- Intel® C246 chipset

**Cooling System**

- 200W Low Noise AC-DC power supply with PFC, Gold Certified
- 1x Slim DVD-ROM Drive
- 5x 40x28mm PWM fan

**Form Factor**

- 1U Rackmount 17.2” (437mm) x 1.7” (43mm) x 11.3” (287mm); Enclosure: 437 x 43 x 381mm (17.2” x 1.7” x 11.5”)
- 1U Rackmount; Enclosure: 437 x 43 x 381mm (17.2” x 1.7” x 11.5”)
- 1U Rackmount: 437 x 43 x 483mm (17.2” x 1.7” x 19.8”)

**Gross Weight**

- 14.1lbs (6.4kg)
- 21.8lbs (9.9kg)
- 25lbs (11.34kg)

**Net Weight**

- 10.0lbs (4.54kg)
- 11.0lbs (5.0kg)
- 25lbs (11.34kg)

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*Please check with your Supermicro sales representative and website for compatibility and configuration details.
Optimized Embedded/IoT Chassis Solutions

**Embedded Chassis Selection Guide**

**Fanless/IoT Gateway**
- Fanless & robust design
- Low power consumption
- Wide-range working temperature & voltage

**Compact Mini Tower**
- Support up to 80W TDP processor
- Hot-swap 3.5” HDD for RAID
- Low profile expansion slot for diversified application

**Compact Dual Node System Trays**
- Rackmount kit available for Xeon® D and Denverton Systems
- Mounting kits for Single Node

**IPC**
- Rackmount with expansion capabilities
- Flexible Front I/O
- Up to 11 PCI-E Expansion slots

**Compact Box System**
- Building block design
- Commercial off-the-shelf with extended product life cycle
- Easy deployment

**1U Rack System**
- 1U Rackmount with advanced cooling design
- Flexible I/O at front and rear
- Remote Management & FW upgrade via IPMI 2.0

**Front Bezel/LCD**

<table>
<thead>
<tr>
<th>Model</th>
<th>MCP-220-00095-0B</th>
<th>MCP-220-00095-0B</th>
<th>MCP-210-00007-01</th>
<th>SCPTFB-813LB</th>
<th>MCP-210-82502-0B</th>
<th>MCP-210-84201-0B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
<td>LCD display kits</td>
<td>Full-color OLED kit</td>
<td>Front bezel with LCD display</td>
<td>Front bezel with lock</td>
<td>Front bezel with lock</td>
<td>Front bezel with lock</td>
</tr>
<tr>
<td>Form Factor/Chassis</td>
<td>5.25” bay</td>
<td>3.5” HDD bay</td>
<td>SC813/813M series</td>
<td>SC813/813M series</td>
<td>SC825M series</td>
<td>SC842 series</td>
</tr>
</tbody>
</table>

**Chassis**

<table>
<thead>
<tr>
<th>Model</th>
<th>SCE102</th>
<th>SCE301</th>
<th>SCE403iF</th>
<th>SCE300-LED</th>
<th>SCE300</th>
<th>SC101F</th>
<th>SC101S</th>
<th>SC101i</th>
<th>SC101iF</th>
<th>SC721TQ-250B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor/Chassis</td>
<td>3.5” SBC/Pico-ITX</td>
<td>Compact Box</td>
<td>Mini-ITX</td>
<td>Compact Box</td>
<td>Compact Box</td>
<td>Compact Box</td>
<td>Compact Box</td>
<td>Compact Box</td>
<td>Compact Box</td>
<td>Compact Mini Tower</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>3.5” SBC, PICO-ITX</td>
<td>Flex-ATX</td>
<td>9.0” x 7.25”</td>
<td>Flex-ATX</td>
<td>9.0” x 7.25”</td>
<td>Mini-ITX</td>
<td>Flex-ATX</td>
<td>9.0” x 7.25”</td>
<td>Mini-ITX</td>
<td>Mini-ITX</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
<td>4x 3.5&quot; fixed drive bay</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
<td>Onboard Mini PCI-E or M.2</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>7.48” x 3.74” x 8.46”</td>
<td>190 x 44 x 120mm</td>
<td>9.09” x 6.94” x 3.79”</td>
<td>254 x 170 x 93mm</td>
<td>10” x 8.8” x 3.7”</td>
<td>254 x 226 x 43mm</td>
<td>10” x 8.8” x 3.7”</td>
<td>254 x 226 x 43mm</td>
<td>7.68” x 7.68” x 1.77”</td>
<td>195 x 195 x 45mm</td>
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SUPERMICRO® Embedded/IoT Building Block Solutions - August 2020
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Form Factor</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>Flex ATX, Mini-ITX</td>
<td>Flex ATX, Mini-ITX</td>
<td>MicroATX</td>
<td>MicroATX</td>
<td>ATX, MicroATX</td>
</tr>
<tr>
<td>CPU Support</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
<td>Single processor</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2 x Fixed 3.5&quot; or 4 Fixed 2.5&quot; SATA</td>
<td>2 x Fixed 3.5&quot; or 4 Fixed 2.5&quot; SATA</td>
<td>2x hot-swap 2.5&quot; SATA</td>
<td>Up to 4x Fixed 2.5&quot; SATA</td>
<td>1x Fixed 2.5&quot; or 3.5&quot; SATA</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1x full-height, half-length</td>
<td>1x full-height, half-length</td>
<td>1x low profile, half-length</td>
<td>1x full-height, half-length**</td>
<td>1x full-height, half-length</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2”x9.8”x1.7” 437 x 249 x 43 mm</td>
<td>17.2”x11.3”x1.7” 437 x 287 x 43 mm</td>
<td>17.2”x9.8”x1.7” 437 x 249 x 43 mm</td>
<td>16.8”x14”x1.7” 437 x 356 x 43 mm</td>
<td></td>
</tr>
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</table>

* When AOC area not occupied
** When HDD area not occupied

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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>15” Mini 1U</td>
<td>1U Rackmount</td>
<td>15” Mini 1U</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
<td>1U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>12” x 13” E-ATX</td>
<td>ATX, MicroATX</td>
<td>12” x 13” E-ATX</td>
<td>WIO</td>
<td>E-ATX, E-ATX, MicroATX</td>
<td>ATX, MicroATX/WIO</td>
<td></td>
</tr>
<tr>
<td>CPU Support</td>
<td>Dual and single processors</td>
<td>Single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Single processors</td>
<td></td>
</tr>
<tr>
<td>Drive Bays</td>
<td>2x 2.5&quot; hot-swap drive bay, Optional 4x 2.5&quot; fixed with bracket</td>
<td>2x Fixed 2.5&quot; or 3.5&quot; SATA</td>
<td>2x 2.5&quot; hot-swap drive bay, Optional 4x 2.5&quot; fixed with bracket</td>
<td>2x Fixed 2.5&quot; SATA</td>
<td>Up to 2x 2.5&quot; solid fixed with bracket - SAS or enterprise SATA HDD</td>
<td>2x Fixed 2.5&quot; SATA***</td>
<td></td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 full-height, half-length (Riser Card Required)</td>
<td>1 full-height, 3/4 length</td>
<td>2 full-height 1 half-height</td>
<td>2 full-height, 1 low profile 1 full-height</td>
<td>2 full-height 2 full-height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>1U 350W Multi-output Platinum Level power supply</td>
<td>350W High-efficiency Gold Level power supply</td>
<td>1U 500W Multi-output Platinum Level power supply</td>
<td>400W (1+1) Redundant SuperCompact Gold-Level power supply with PMBus and I2C</td>
<td>500W High-efficiency Power Supply w/ Platinum Certification</td>
<td>400W (1+1) Redundant SuperCompact Platinum-level power supply with PMBus and I2C</td>
<td></td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2”x15”x1.7” 437 x 381 x 43 mm</td>
<td>17.2”x14.5”x1.7” 437 x 369 x 43 mm</td>
<td>17.2”x15”x1.7” 437 x 381 x 43 mm</td>
<td>17.2”x16.9”x1.7” 437 x 429 x 43 mm</td>
<td>17.2”x16.9”x1.7” 437 x 429 x 43 mm</td>
<td>17.2”x16.9”x1.7” 437 x 429 x 43 mm</td>
<td></td>
</tr>
</tbody>
</table>

*** Extra 2x 2.5” Fixed HDD with ATX MB or Extra 1x 3.5” or 2x2.5 Fixed with Half Length Add on Card.

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<table>
<thead>
<tr>
<th>Model</th>
<th>SC213XAC-R1K05LP</th>
<th>SC825MBTQC-R802LPB</th>
<th>SC825XTQC-R1K05</th>
<th>SC835TQC-R802B</th>
<th>SC842XTQC-R804B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>2U Rackmount</td>
<td>2U 17.7” Short-Depth Compact</td>
<td>2U Rackmount</td>
<td>3U Rackmount</td>
<td>4U Rackmount</td>
</tr>
<tr>
<td>Compatible Motherboard</td>
<td>E-ATX, ATX, MicroATX; Max. size 15.2” x 13.2</td>
<td>EE-ATX 13.68” x 13”, E-ATX 12” x 13”, ATX 12” x 10”</td>
<td>E-ATX 12”x13”, ATX 12”x10”</td>
<td>E-ATX, ATX, MicroATX; Max. size 15.2” x 13.2</td>
<td></td>
</tr>
<tr>
<td>CPU Support</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
<td>Dual and single processors</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>16x 2.5” hot-swap SAS/SATA</td>
<td>3x 3.5” hot-swap SAS/SATA with SGPIO, Optional 2x 2.5” hot-swap SAS/SATA</td>
<td>8x 3.5” hot-swap SAS/SATA with SGPIO, and 2x 3.5” fixed drive bay</td>
<td>8x 3.5” Hot-swap SAS/SATA</td>
<td>5x 3.5” Hot-swap SAS/SATA</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>11x low-profile</td>
<td>7x low-profile</td>
<td>7x low-profile</td>
<td>7x full-height, full-length</td>
<td>7x full-height, full-length and 4x full-height, half-height</td>
</tr>
<tr>
<td>Power Supply</td>
<td>2x 1U 800/1000W Redundant Power Supplies 38mm Width</td>
<td>800W Redundant Titanium Level Power Supplies</td>
<td>2x 1U 740W Redundant Titanium Level Power Supply w/ PMbus</td>
<td>800W Redundant Titanium Level Power Supplies</td>
<td>800W Redundant Titanium Level Power Supplies</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>17.2” x 25.6” x 3.5” 437 x 650 x 89 mm</td>
<td>17.2”x17.7” x 3.5” 437 x 450 x 89 mm</td>
<td>17.2”x25.5” x 3.5” 437 x 647 x 89 mm</td>
<td>17.2”x25.5” x 5.2” 437 x 647 x 132 mm</td>
<td>17.2”x20.5” x 7” 437 x 521 x 178 mm</td>
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<tr>
<td>MODEL</td>
<td>X12SAE</td>
<td>X12SCA-F</td>
<td>X12SCQ</td>
<td>X12SCZ-QF</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
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<td></td>
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<tr>
<td>Processor</td>
<td>10th Generation Intel® Core™ i9/Core™ i7/Core™ i7/Pentium®/Celeron® Processor, Intel® Xeon® W-1200 Processors</td>
<td>Single Socket LGA-1200 (Socket H4) supported, CPU TDP support Up to 125W TDP Intel® W480</td>
<td>10th Generation Intel® Core™ i7/Core™ i7/Pentium®/Celeron® Processor, Intel® Xeon® W-1200 Processors</td>
<td>Single Socket LGA-1200 (Socket H4) supported, CPU TDP support Up to 125W TDP Intel® Q470E</td>
<td></td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>Intel® W480</td>
<td>Intel® W480</td>
<td>Intel® Q470E</td>
<td>Intel® Q470E</td>
<td></td>
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<tr>
<td>Form Factor</td>
<td>ATX, 12&quot; x 9.6&quot; (30.48cm x 24.38cm)</td>
<td>ATX, 12&quot; x 9.6&quot; (30.48cm x 24.38cm)</td>
<td>ATX, 12&quot; x 9.6&quot; (30.48cm x 24.38cm)</td>
<td>ATX, 12&quot; x 9.6&quot; (24.38cm x 34.8cm)</td>
<td></td>
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<tr>
<td>Memory</td>
<td>128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots</td>
<td>128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots</td>
<td>128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots</td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots</td>
<td></td>
</tr>
<tr>
<td>Capacity &amp; Slots</td>
<td>1 PCI-E 3.0 x4, 2 PCI-E 3.0 x4 x 12 8-pin 12v DC power connector, Chassis intrusion header, CPU, Memory, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDDIMM), 5-fan status, Chassis intrusion header, CPU, Memory, VBAT</td>
<td>1 PCI-E 3.0 x4, 2 PCI-E 3.0 x4 x 12 8-pin 12v DC power connector, Chassis intrusion header, CPU, Memory, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDDIMM), 5-fan status, Chassis intrusion header, CPU, Memory, VBAT</td>
<td>1 PCI-E 3.0 x4, 2 PCI-E 3.0 x4 x 12 8-pin 12v DC power connector, Chassis intrusion header, CPU, Memory, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDDIMM), 5-fan status, Chassis intrusion header, CPU, Memory, VBAT</td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots</td>
<td></td>
</tr>
<tr>
<td>M.2 Interface</td>
<td>2 PCI-E 3.0 x4, RAID 0 &amp; 1 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>2 PCI-E 3.0 x4, RAID 0 &amp; 1 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>2 PCI-E 3.0 x4, RAID 0 &amp; 1 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>2 PCI-E 3.0 x4, RAID 0 &amp; 1 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td></td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Intel® W480 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® W480 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® W480 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® Q470E controller for 4 RAID 0,1,5,10</td>
<td></td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 DP (DisplayPort) port, 1 HDMI port, 1 DVI - D port, 2 USB 2.0 ports (2 via headers)</td>
<td>1 DP (DisplayPort) port, 1 HDMI port, 1 DVI - D port, 2 USB 2.0 ports (2 via headers)</td>
<td>1 DP (DisplayPort) port, 1 HDMI port, 1 DVI - D port, 2 USB 2.0 ports (2 via headers)</td>
<td>1 DP (DisplayPort) port, 1 HDMI port, 1 DVI - D port, 2 USB 2.0 ports (2 via headers)</td>
<td></td>
</tr>
<tr>
<td>USB Ports</td>
<td>3 USB 3.2 Gen1 ports (1 via header + 2 Type A) 5 USB 3.2 Gen2 ports (3 Rear Type A + 1 Rear Type C, 1 via header)</td>
<td>3 USB 3.2 Gen1 ports (1 via header + 2 Type A) 5 USB 3.2 Gen2 ports (3 Rear Type A + 1 Rear Type C, 1 via header)</td>
<td>3 USB 3.2 Gen1 ports (1 via header + 2 Type A) 5 USB 3.2 Gen2 ports (3 Rear Type A + 1 Rear Type C, 2 via headers)</td>
<td>3 USB 3.2 Gen1 ports (1 via header + 2 Type A) 5 USB 3.2 Gen2 ports (3 Rear Type A + 1 Rear Type C, 2 via headers)</td>
<td></td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>ALC 8885 HD Audio TPM 2.0 Header</td>
<td>ALC 8885 HD Audio TPM 2.0 Header</td>
<td>ALC 8885 HD Audio TPM 2.0 Header</td>
<td>ALC 8885 HD Audio TPM 2.0 Header</td>
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</tr>
<tr>
<td>Manageability</td>
<td>AMT, SSM, SUM, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, SSM, SUM, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, SSM, SUM, SuperDoctor® 5, vPro, Watchdog</td>
<td>AMT, IPMI ( Intelligent Platform Management Interface) v2.0 with KVM support, SSM, SUM, SuperDoctor® 5, vPro, Watchdog</td>
<td></td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>+1.0V PCH, +1.8V PCH, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 3.3V standby, CPU temperature, CPU thermal trip support, LAN temperature, Memory temperature, PCH temperature, System temperature, VBAT, VRM temperature</td>
<td>+1.0V PCH, +1.8V PCH, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 3.3V standby, CPU temperature, CPU thermal trip support, LAN temperature, Memory temperature, PCH temperature, System temperature, VBAT, VRM temperature</td>
<td>+1.35V, +1.5V, +1.8V, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 4-fan status, 4-fan with tachometer monitoring, VBAT, VRM temperature</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDDIMM), 5-fan status, Chassis intrusion header, CPU, Memory, VBAT</td>
<td></td>
</tr>
<tr>
<td>Thermal Control</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Rohs, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Rohs, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Rohs, WOL</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Rohs, WOL</td>
<td></td>
</tr>
<tr>
<td>Other Features</td>
<td>NEW! Workstation NEW! Embedded High Performance vPro AMT NEW! Embedded vPro AMT, IPMI</td>
<td>NEW! Workstation NEW! Embedded High Performance vPro AMT NEW! Embedded vPro AMT, IPMI</td>
<td>NEW! Workstation NEW! Embedded High Performance vPro AMT NEW! Embedded vPro AMT, IPMI</td>
<td>NEW! Workstation NEW! Embedded High Performance vPro AMT NEW! Embedded vPro AMT, IPMI</td>
<td></td>
</tr>
</tbody>
</table>
**Thermal Control**
- AMT, SuperDoctor® 5, vPro, Watchdog
- Manageability
- I/O Devices
- USB Ports
- Other Onboard I/O Devices
- Manageability
- Health Monitoring
- Thermal Control
- Other Features

**New!**
- Embedded mini-ITX
- Dual 10GbE
- vPro AMT, IPMI

**Model** | **X12SCV-LVDS** | **X12SCZ-TLN4F** | **X12SCZ-F**
---|---|---|---
**Processor** | 10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/ Core™ i3/Pentium®/Celeron® Processor, Intel® Xeon® W-1200 Processors | 10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/ Core™ i3/Pentium®/Celeron® Processor, Intel® Xeon® W-1200 Processors | 10th Generation Intel® Core™ i9/Core™ i7/Core™ i5/ Core™ i3/Pentium®/Celeron® Processor, Intel® Xeon® W-1200 Processors
**Chipset/System Bus** | Intel® W480E | Intel® W480E | Intel® W480E
**Form Factor** | Mini-ITX 6.7” x 6.7” (17.02cm x 17.02cm) | microATX 9.6” x 9.0” (24.38cm x 24.38cm) | microATX 9.6” x 9.0” (24.38cm x 24.38cm)
**Memory Capacity & Slots** | Up to 64GB DDR4 ECC/non-ECC SO-DIMM, SO-DDR4-2933MHz, in 2 DIMM slots | Up to 128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots | Up to 128GB Unbuffered ECC/non-ECC UDIMM, DDR4-2933MHz, in 4 DIMM slots
**Expansion Slots** | 1 PCI-E 3.0 x16 slots (16/NA or 8/8) | 1 PCI-E 3.0 x16, 1 PCI-E 3.0 x4 (in x8 slot), 1 PCI-E 3.0 x4, 1 M.2 M-Key SATA/PCI-E 3.0 x4, 2280/22110 | 1 PCI-E 3.0 x16, 1 PCI-E 3.0 x4 (in x8 slot), 1 PCI-E 3.0 x4, 1 M.2 M-Key SATA/PCI-E 3.0 x4, 2280/22110
**Onboard RAID Controller** | Intel® W480E controller for 2 SATA3 (6 Gbps) ports; RAID 0,1 | Dual LAN with Intel® X550 10GBase-T Ethernet Controller | Intel® W480E controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10
**Onboard LAN** | Single LAN with Intel® PHY I219LM LAN controller | Single LAN with Intel® Ethernet Controller I210-AT | Single LAN with Intel® PHY I219LM LAN controller
**Onboard VGA/Display Ports** | 2 HDMI ports, 1 DisplayPort, 1 LVDS port, 3 Independent Displays | 1 VGA D-Sub Connector port, 2 DP++ (Dual-Mode DisplayPort) ports, 1 DVI-D port, 1 DVI-D port, 1 VGA D-Sub Connector port, 2 DP++ (Dual-Mode DisplayPort) ports, 1 DVI-D port, | 1 VGA D-Sub Connector port, 2 DP++ (Dual-Mode DisplayPort) ports, 1 DVI-D port, 1 VGA D-Sub Connector port, 2 DP++ (Dual-Mode DisplayPort) ports, 1 DVI-D port
**USB Ports** | 4 USB 2.0 ports (4 via headers), 4 USB 2.0 ports (4 Rear Type A) | 6 USB 2.0 ports (6 via headers), 6 USB 2.0 ports (6 Rear Type A, 2 via headers) | 6 USB 2.0 ports (6 via headers), 6 USB 3.2 Gen2 ports (4 Rear Type A, 2 via headers)
**Other Onboard I/O Devices** | ALC 8885 HD Audio TPF Header & Chip both | ALC 8885 HD Audio TPF Header & Chip both | ALC 8885 HD Audio TPF Header & Chip both
**Manageability** | AMT, SuperDoctor® 5, vPro, Watchdog | AMT, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, SUM, SuperDoctor® 5, vPro, Watchdog | AMT, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, SUM, SuperDoctor® 5, vPro, Watchdog
**Health Monitoring** | +1.8V, +3.3V, -3.3V - fan status, Chipset Voltage, CPU temperature, HT, Monitors CPU voltages, PCH temperature, System level control, System temperature, VBAT | +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 5 - fan status, Chassis intrusion header, CPU, Memory temperature, PCH temperature, VBAT | +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 5 - fan status, Chassis intrusion header, CPU, Memory, PCH temperature, VBAT
**Thermal Control** | 3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, Fan speed control, PWM fan speed control, System level control | 5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control | 5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control
**Other Features** | 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS, System level control, WOL | 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, Dual Cooling Zones, M.2 NGFF connector, RoHS, UID | 12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS, UID

**New!**
- Embedded mini-ITX
- Dual 10GbE
- vPro AMT, IPMI

**Supermicro® Embedded/IoT Building Block Solutions - August 2020**
### Denverton 8-Core, 8 GbE RJ45, Intel® QuickAssist Technology

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A2SDV-8C-LN8F</th>
<th>A2SDV-8C-LN10PF</th>
<th>A2SDV-4C-LN8F</th>
<th>A2SDV-4C-LN10PF</th>
<th>A2S Di-2C-HLN4F</th>
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<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Atom™ C3758, Single Socket FCBGA1310 supported, CPU TDP support 25W</td>
<td>Intel® Atom™ C3558, Single Socket FCBGA1310 supported, CPU TDP support 16W</td>
<td>Intel® Atom™ C3338, Single Socket FCBGA1310 supported, CPU TDP support 9W</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>Flex ATX 9.0” x 7.25” (22.86cm x 18.42cm)</td>
<td>Flex ATX 9.0” x 7.25” (22.86cm x 18.42cm)</td>
<td>Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)</td>
<td>System on Chip</td>
<td>Up to 128GB Register DIMM RDIMM, DDR4-1866MHz; or, 32GB Unbuffered ECC/non ECC UDIMM, DDR4-1866MHz, on 2 DIMM slots</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>Up to 8 SATA3(6 Gbps) ports via SoC. * Number of SATA ports is configurable in BIOS: 1 or 3. One SATA port is available when PCI-E x2 expansion slot is enabled</td>
<td>Up to 8 SATA3(6 Gbps) ports via SoC. * Number of SATA ports is configurable in BIOS setup: 4, 6, 8. Total combined PCI-E lanes and SATA ports is up to 8.</td>
<td>Up to 8 SATA3(6 Gbps) ports via SoC. * Number of SATA ports is configurable in BIOS setup: 4, 6, 8. Total combined PCI-E lanes and SATA ports is up to 8.</td>
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<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x4 Option for Slot 6 or Slot 7</td>
<td>1 PCI-E 3.0 up to x2 (in x4 slot)</td>
<td>1 PCI-E 3.0 up to x4 (in x4 slot)</td>
<td>1 PCI-E 3.0 up to x4 (in x4 slot)</td>
<td>1 PCI-E 3.0 up to x4 (in x4 slot)</td>
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<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Quad LAN with Intel® C3000 SoC</td>
<td>Quad LAN with Intel® C3000 SoC</td>
<td>Quad LAN with Intel® C3000 SoC</td>
<td>Quad LAN with Intel® C3000 SoC</td>
<td>Quad LAN with Intel® C3000 SoC, GbE</td>
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<tr>
<td><strong>Onboard LAN</strong></td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4 Dual LAN with Intel® i210-IS 1G SFP (-LN10PE only)</td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4 Dual LAN with Intel® i210-IS 1G SFP (-LN10PE only)</td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4</td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4</td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4, GbE</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 2.0 ports (2 headers), 3 USB 3.0 ports (2 rear + 1 Type A)</td>
<td>2 USB 2.0 ports (2 headers), 3 USB 3.0 ports (2 rear + 1 Type A)</td>
<td>2 USB 2.0 ports (2 headers), 3 USB 3.0 ports (2 rear + 1 Type A)</td>
<td>4 USB 2.0 ports (2 rear + 2 via headers, 1 USB 3.0 ports (via header + 1 Type A)</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header)</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>TPM Header, 1 COM Port (1 header)</td>
<td>TPM Header, 1 COM Port (1 header)</td>
<td>TPM Header, 1 COM Port (1 header)</td>
<td>TPM Header, 1 COM Port (1 header)</td>
<td>TPM Header, 1 COM Port (1 header)</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>IPMI 2.0, NMI, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0, NMI, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0, NMI, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0, NMI, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 5 -fan status, Chassis intrusion header, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 5 -fan status, Chassis intrusion header, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4-fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4-fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control</td>
<td>5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control</td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, UID</td>
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</tbody>
</table>
## Embedded/IoT Motherboard Solutions

### Denerton
**4-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology**

**A2SDi-4C-HLN4F**
- **Model**: A2SDi-4C-HLN4F
- **Processor**: Intel® Atom™ Processor C3558, Single Socket FCBGA1310 supported, CPU TDP support 16W
- **System on Chip**: System on Chip
- **Form Factor**: Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)
- **Memory Capacity & Slots**: Up to 256GB Registered ECC RDIMM, DDR4-2133MHz or 64GB Unbuffered ECC/Non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots
- **Expansion Slots**: 1 PCI-E 3.0 up to x4 (in x4 slot), M.2 Interface: PCI-E 3.0 x2 and SATA, M.2 Key: M-Key
- **Onboard LAN**: Quad LAN with Intel® C3000 SoC, GbE
- **Onboard VGA/Display Ports**: 1 VGA port, 1 Aspeed AST2400 BMC
- **USB Ports**: 4 USB 2.0 ports (2 rear + 2 via headers), 1 USB 3.0 ports (via header + 1 Type A)
- **Other Onboard I/O Devices**: 1 Port SuperDOM, 1 COM Ports (1 header)
- **Manageability**: +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT +1.8V, +12V, +5V (PCH), 1.2V (VDIMM), 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI
- **Thermal Control**: Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors
- **Other Features**: 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, JID, WOL, Intel® Quick Assist Technology

### Denerton
**8/12/16-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology**

**A2SDi-8C-HLN4F**
- **Model**: A2SDi-8C-HLN4F
- **Processor**: Intel® Atom™ Processor C3850; Quad LAN with Intel® C3000 SoC, GbE
- **System on Chip**: System on Chip
- **Form Factor**: Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)
- **Memory Capacity & Slots**: Up to 256GB Registered ECC RDIMM, DDR4-2400MHz or 64GB Unbuffered ECC/Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots
- **Expansion Slots**: 1 PCI-E 3.0 x4, M.2 Interface: PCI-E 3.0 x2 and SATA, M.2 Key: M-Key
- **Onboard LAN**: Quad LAN with Intel® C3000 SoC, GbE
- **Onboard VGA/Display Ports**: 1 VGA port, 1 Aspeed AST2400 BMC
- **USB Ports**: 4 USB 2.0 ports (2 rear + 2 via headers), 1 USB 3.0 ports (via header + 1 Type A)
- **Other Onboard I/O Devices**: 1 Port SuperDOM, 1 COM Ports (1 header)
- **Manageability**: +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT +1.8V, +12V, +5V (PCH), 1.2V (VDIMM), 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI
- **Thermal Control**: Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors
- **Other Features**: 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, JID, WOL, Intel® Quick Assist Technology

### Denerton
**12-Core, Dual/Quad 10GbE LAN, Intel® QAT, IPMI**

**A2SDi-TP8F**
- **Model**: A2SDi-TP8F
- **Processor**: -TP8F: Intel® Atom™ Processor C3850, Single Socket FCBGA1310 supported, CPU TDP support 25W
- **System on Chip**: System on Chip
- **Form Factor**: Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)
- **Memory Capacity & Slots**: Up to 64GB Unbuffered ECC/Non-ECC SO-DIMM, DDR4-2400MHz, in 4 DIMM slots
- **Expansion Slots**: 1 PCI-E 3.0 x4, 1 miniPCI-E with mSATA supports (half card only), M.2 Interface: PCI-E 3.0 x4 and SATA, M.2 Form Factor: 2242, 2280, M.2 Key: M-Key
- **Onboard RAID Controller**: SoC controller for 12 SATA3 (6 Gbps) ports
- **Onboard LAN**: Quad LAN with Intel® C3000 SoC
- **Onboard VGA/Display Ports**: 1 VGA port, 1 Aspeed AST2400 BMC
- **USB Ports**: 4 USB 2.0 ports (4 headers), 2 USB 3.0 ports (2 rear)
- **Other Onboard I/O Devices**: 1 Port SuperDOM, 1 COM Ports (1 header)
- **Manageability**: IPMI 2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog
- **Health Monitoring**: IPMI 2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog
- **Thermal Control**: Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors
- **Other Features**: 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, JID, WOL

### A2SDi-LN4F
- **Model**: A2SDi-LN4F
- **Processor**: +8C: Intel® Atom™ Processor C3955, 31W
- **System on Chip**: System on Chip
- **Form Factor**: Mini-ITX, 6.7” x 6.7” (17.02cm x 17.02cm)
- **Memory Capacity & Slots**: +8C: Quad LAN with Intel® C3000 SoC
- **Expansion Slots**: 1 miniPCI-E with mSATA supports (half card only)
- **Onboard RAID Controller**: SoC controller for 4 SATA3 (6 Gbps) ports
- **Onboard LAN**: Quad LAN with Intel® C3000 SoC, GbE
- **Onboard VGA/Display Ports**: 1 VGA port, 1 Aspeed AST2400 BMC
- **USB Ports**: 4 USB 2.0 ports (2 rear + 2 via headers), 1 USB 3.0 ports (via header + 1 Type A)
- **Other Onboard I/O Devices**: 1 Port SuperDOM, 1 COM Ports (1 header)
- **Manageability**: +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4-pin status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI
- **Thermal Control**: Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors
- **Other Features**: 12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, JID, WOL

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**SUPERMICRO® Embedded/IoT Building Block Solutions - August 2020**

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<tr>
<th>Model</th>
<th>A2SDi-H-TP4F</th>
<th>A2SDi-16C-TP8F</th>
<th>A2SDv-BCTLN5F</th>
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<tr>
<td><strong>Processor</strong></td>
<td>Intel® Atom™ Processor C3958, Single Socket FCBGA1310 supported, CPU TDP support 31W TDP</td>
<td>Intel® Atom™ Processor C3958, Single Socket FCBGA1310 supported, CPU TDP support 31W TDP</td>
<td>Intel® Atom™ Processor C3708, 17W; Intel® Atom™ Processor C3859, 25W; Intel® Atom™ Processor C3958, 31W</td>
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<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX, 6.7&quot; x 6.7&quot; (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7&quot; x 6.7&quot; (17.02cm x 17.02cm)</td>
<td>Mini-ITX, 6.7&quot; x 6.7&quot; (17.02cm x 17.02cm)</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>1 PCI-E x 4, 1 miniPCI-E with mSATA supports (half card only) M.2 Form Factor: 2242, 2280 M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x8 Option for Slot 6 or Slot 7 M.2 Interface: PCI-E 3.0 x4 and 1 SATA/PCI-E 3.0 x2 and 1 SATA/USB 3.0 M.2 Form Factor: 2242/2280/3042 M.2 Key: M-Key, B-Key</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E x 4, 1 miniPCI-E with mSATA supports (half card only) M.2 Form Factor: 2242, 2280 M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x4</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports;</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 12 SATA3 (6 Gbps) ports; 4 SATA3 ports, 2 MiniSAS HD ports</td>
<td>Quad LAN with Intel® C3000 SoC 2 10G BaseT, 2 10Gb SFP+</td>
<td>Quad LAN with Intel® Ethernet Controller i350-AM4 1GbE</td>
</tr>
<tr>
<td><strong>Onboard USB Ports</strong></td>
<td>4 USB 2.0 ports (2 rear + 2 headers)</td>
<td>4 USB 2.0 ports (4 headers, Type A)</td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA port, 1 Aspeed AST2400 BMC</td>
<td>2 USB 2.0 ports (4 rear via headers + 1 Type A)</td>
<td>2 USB 2.0 ports (4 rear via headers + 1 Type A)</td>
</tr>
<tr>
<td><strong>Onboard I/O Devices</strong></td>
<td>1 Port SuperDOM, TPM Header, 1 COM Ports (1 header),</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header)</td>
<td>TPM Header, 1 COM Ports (1 header), 1 COM Port in RJ45 Socket,</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>IPMI 2.0, KVM with dedicated LAN, NMI, SuperDoctor®, Watchdog</td>
<td>IPMI 2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog</td>
<td>IPMI 2.0, NMI, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +5V, 1.05 (PCH), 1.2V (VDIMM), 4 -fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI</td>
<td>+1.8V, +12V, +5V, 1.05 (PCH), 1.2V (VDIMM), 4 -fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI</td>
<td>+12V, +3.3V, +5V, 1.05 standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 6 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
<td>4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Innovation Engine, RoHS, SDDC, System level control, UID, WOL</td>
<td>12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Innovation Engine, RoHS, SDDC, System level control, UID, WOL</td>
<td>12V DC or ATX Power Source, 4-pin 12V DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, SDDC, System level control, UID, WOL</td>
</tr>
<tr>
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<tr>
<td>Processor</td>
<td>Intel® Avoton™ Processor -2750F: C2750 (8C/20W); -2550F: C2550 (4C/14W)</td>
<td>Intel® Rangeley Atom™ Processor -2758F: C2758 (8C/20W); -2558F: C2558 (4C/15W); -2358F: C2358 (2C/7W)</td>
<td>Intel® Avoton Atom™ Processor -2750F: C2750 (8C/20W); -2550F: C2550 (4C/14W)</td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>System on Chip</td>
<td>MicroATX 9.6&quot; x 7.5&quot;</td>
<td>System on Chip</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Mini-ITX 6.75&quot; x 6.75&quot;</td>
<td>MicroATX 9.6&quot; x 7.5&quot;</td>
<td>MicroATX 8.0&quot; x 9.6&quot;</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 64GB ECC SODIMM in 4 slots</td>
<td>Up to 64GB Unbuffered ECC/Non-ECC UDIMM, DDR3-1600 MHz, in 4 DIMMs; x8 width only</td>
<td>Up to 64GB Unbuffered ECC/Non-ECC UDIMM, DDR3-1600 MHz, in 4 DIMMs; x8 width only</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>1 PCI-E 2.0 x8</td>
<td>1 PCI-E 2.0 x8</td>
<td>1 PCI-E 2.0 x4</td>
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<tr>
<td>Onboard RAID Controller</td>
<td>SoC controller for 4 SATA2 (3Gb/s) ports; 2 SATA3 (6Gb/s)</td>
<td>SoC controller for 4 SATA2 (3Gb/s) ports; 2 SATA3 (6Gb/s); A1SIr-2358F: 2 SATA3 + 2 SATA2</td>
<td>SoC controller for 4 SATA2 (3Gb/s) ports; 2 SATA3 (6Gb/s);</td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
</tr>
<tr>
<td>USB Ports</td>
<td>4 USB 3.0 ports (2 rear + 1 via header + 1 Type A); 2 USB 2.0 ports (2 rear)</td>
<td>7 USB 2.0 ports (4 rear + 2 via headers + 1 Type A)</td>
<td>7 USB 2.0 ports (4 rear + 2 via headers + 1 Type A)</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 SATA DOM power connector</td>
<td>1 SATA DOM power connector</td>
<td>1 SATA DOM power connector</td>
</tr>
<tr>
<td>Manageability</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, Chassis intrusion header, Supports system management utility, System level control</td>
<td>IPMI 2.0, SuperDoctor 5, Watchdog Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby and total of three 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
<td>IPMI 2.0, SuperDoctor 5, Watchdog Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby and total of three 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td>Other Features</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Turbo Boost Technology or Intel® QuickAssist Technology, System level control, UID, WOL, 0°C–60°C operating temperature</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Turbo Boost Technology or Intel® QuickAssist Technology, System level control, UID, WOL, 0°C–60°C operating temperature</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Turbo Boost Technology or Intel® QuickAssist Technology, System level control, UID, WOL, 0°C–60°C operating temperature</td>
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</tbody>
</table>
## Embedded/IoT Motherboard Solutions

**Apollo Lake**
- **Model**: E3940/E3930, Mini-ITX
- **Processor**: Intel® Pentium™ Processor N4200
- **Chipset/System Bus Form Factor**: Mini-ITX, 6.7" x 6.7" (17.0cm x 17.0cm)
- **Memory**: Up to 8GB Unbuffered non-ECC SO-DIMM, 1 DIMM slots
- **Power Management**: 4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL

**Embedded SoC, quad LAN, IPMI mini-ITX**
- **Model**: X11SBA-LN4F
- **Processor**: Intel® Pentium™ Processor N3700
- **Chipset/System Bus Form Factor**: Mini-ITX, 6.7" x 6.7" (17.0cm x 17.0cm)
- **Memory**: 8GB Unbuffered non-ECC SO-DIMM, DDR3-1600MHz, in 2 DIMM slots
- **Power Management**: 4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, System level control, UID, WOL, 0°C -60°C operating temperature

### TABLE 1

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<thead>
<tr>
<th>MODEL</th>
<th>A2SAV</th>
<th>A2SAV-L</th>
<th>A2SAV-2C-L</th>
<th>X11SAA</th>
<th>X11SAN</th>
<th>X11SAN-WOHS</th>
<th>X11SBA-LN4F</th>
<th>X11SBA-F</th>
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<tr>
<td><strong>Processor</strong></td>
<td>Intel® Atom™ Processor x5-E3940</td>
<td>Intel® Pentium™ Processor N4200</td>
<td>Intel® Pentium™ Processor N4200</td>
<td>Intel® Pentium™ Processor N4200</td>
<td>Intel® Pentium™ Processor N3700</td>
<td>Intel® Pentium™ Processor N3700</td>
<td>Intel® Pentium™ Processor N3700</td>
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<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>A2SAV-L</td>
<td>A2SAV-L</td>
<td>A2SAV-2C-L</td>
<td>A2SAVL</td>
<td>A2SAVL</td>
<td>A2SAVL</td>
<td>A2SAVL</td>
<td>A2SAVL</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Intel® HD Graphics</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
<td>1x Mini-PCI-E with mSATA</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports; Marvel 88SE9230 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,10</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 2 SATA3 (6 Gbps) ports</td>
<td></td>
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<tr>
<td><strong>Memory</strong></td>
<td>1 DP (DisplayPort) port, 1 HDMI port, 1 VGA port, 1 eDP (Embedded DisplayPort) port</td>
<td>4 USB 2.0 ports (2 rear + 2 via headers)</td>
<td>8 USB 2.0 ports (2 rear + 5 via headers + 1 Type A)</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
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<td><strong>Power Management</strong></td>
<td>1 Port SuperDOM, 3 COM Ports (1 rear, 2 headers), 1x COM in RS485, 1x COM in RS232, and 1x COM in RS485</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
<td>1 Port SuperDOM, ALC 8885 HD Audio, TPM header</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
<td>SuperDoctor® 5, Watchdog</td>
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<td><strong>Thermal Control</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control</td>
<td></td>
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<tr>
<td><strong>Other Features</strong></td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
<td>4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL</td>
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<td>Processor</td>
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<td>System on Chip</td>
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<td>Memory</td>
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<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Capacity &amp; Slots</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Onboard RAID Controller</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
<td>SoC controller for 1 SATA3 (6 Gbps) port</td>
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<td>Onboard LAN</td>
<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
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<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
<td>Dual LAN with Intel® Ethernet Controller 210IT</td>
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<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 Intel® HD Graphics, 1 Dual channel 48-bit LVDS (max. resolution up to 1920x1200@60Hz), HDMI (max. resolution up to 3840x2160)</td>
<td>1 VGA port, 1 LVDS port, 1 HDMI port, 1 Intel® HD Graphics, 1 HDMI port</td>
<td>1 VGA port, 1 LVDS port, 1 HDMI port, 1 Intel® HD Graphics, 1 HDMI port</td>
<td>1 VGA port, 1 LVDS port, 1 HDMI port, 1 Intel® HD Graphics, 1 HDMI port</td>
<td>1 VGA port, 1 LVDS port, 1 HDMI port, 1 Intel® HD Graphics, 1 HDMI port</td>
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<td>1 VGA port, 1 LVDS port, 1 HDMI port, 1 Intel® HD Graphics, 1 HDMI port</td>
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<tr>
<td>USB Ports</td>
<td>2 USB 3.0 ports (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
<td>4 USB 2.0 ports (+4 via headers), 1 USB 2.0 port (rear I/O)</td>
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<td>I/O Devices</td>
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<tr>
<td>Health Monitoring</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
<td>+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI</td>
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<tr>
<td>Thermal Control</td>
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<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Other Features</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</table>

**NEW!**

**Embedded**

x5-E3940/x5-E3930

2.5” Pico ITX

2.5” SBC, 4” x 2.83”

**Embedded**

x5-E3940/x5-E3930

3.5” SBC

3.5” SBC, 5.7” x 4.0”

**Embedded**

x5-E3940/Celeron J3455

3.5” SBC

3.5” SBC, 5.866” x 4.212”

**Embedded**

Embedded Low Power

Intel® Atom® Processor N2800.

Processor: N2800 supported, supported, CPU TDP support 6.5W

Form Factor: 3" SBC, 3.5" SBC (9.1cm x 10.16cm)

I/O Devices: Quad GbE LAN with Intel® Ethernet Controller 210IT (1 port, 1 port, 1 port)

USB Ports: 1 USB 2.0 port (rear I/O), 2 USB 0.3 ports (rear I/O), 1 USB 1.3 ports (1 Type C)

Capacity & Slots: N/A

Form Factor: 2.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)

NEW!

A2SAN-L(-WOHS)

x5-E3940/x5-E3930

Embedded/IoT Motherboard Solutions
<table>
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<th>X11SCM-F</th>
<th>X11SCH-F</th>
<th>X11SCW-F</th>
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<tr>
<td>Processor</td>
<td>Intel® Celeron® Processor J1900 10W FCBGA1170, 2.0-2.4GHz</td>
<td>8th Generation Intel® Core™ i3/Pentium® /Celeron® Processor; Intel® Xeon® Processor E-2100 and E-2200 series. Socket LGA 1151 supported, CPU TDP support Up to 95W TDP</td>
<td>8th Generation Intel® Core™ i3/Pentium® /Celeron® Processor; Intel® Xeon® Processor E-2100 and E-2200 series. Socket LGA 1151 supported, CPU TDP support Up to 95W TDP</td>
<td>Intel® Celeron® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor; Intel® Xeon® Processor</td>
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<tr>
<td>Chipset/System Bus</td>
<td>System on Chip</td>
<td>Intel C246</td>
<td>Intel C246</td>
<td>Intel C246</td>
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<td>Form Factor</td>
<td>Mini-ITX 6.7&quot; x 6.7&quot;</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>2 DIMM slots, 8GB with two 4GB SODIMM configuration, 1.35V only</td>
<td>Up to 128GB DDR4 ECC UDIMM, in 4 DIMM slots</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4 M.2 Form Factor: 2280, 22110 M.2 Key: M-Key Double Height Connector</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4 M.2 Form Factor: 2280, 22110 M.2 Key: M-Key Double Height Connector</td>
</tr>
<tr>
<td>M.2 Expansion Slots</td>
<td>1 PCI-E 2.0 x2 1 Mini-PCI-E slot, 1 mSATA slot</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4 M.2 Form Factor: 2280, 22110 M.2 Key: M-Key Double Height Connector</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4 M.2 Form Factor: 2280, 22110 M.2 Key: M-Key Double Height Connector</td>
<td>1 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: 1 SATA/PCI-E 3.0 x4 and 1 PCI-E 3.0 x4 M.2 Form Factor: 2260/2280/22110 M.2 Key: M-Key Double Height Connector</td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Marvel 88SE9230 for 4x SATA3 (6 Gbps) with RAID 0,1,10; L: SoC controller for 2 SATA2 (3 Gbps) ports</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C246 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller i210-AT</td>
</tr>
<tr>
<td>Onboard LAN/DisplayPort</td>
<td>Intel® HD Graphic VGA + HDMI + DisplayPort + eDP 1 USB 3.0 ports (1 rear) 6 USB 2.0 ports (1 rear, 4 via headers, 1 type A) 4 COM ports support RS-232 (4 headers), TPM header, Audio Header</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td>Manageability</td>
<td>Watchdog, SuperDoctor® 5</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>Monitors CPU voltages, +3.3V, +5V, +12V &amp; +5V standby and total of two 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>Intel® Node Manager, IPMI 2.0, NMI, SPM, SSM, SUM, SuperDoctor® 5, Watchdog +12V, +3.3V, +5V, +5V standby, 6-fan status, Chassis intrusion header, Chipset Voltage, Memory Voltages, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td>Thermal Control</td>
<td>Overheat LED indication, thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
</tr>
<tr>
<td>Other Features</td>
<td>ACPI power management, WOL, control of power-on for recovery from AC power loss, Adaptive Thermal Monitor &amp; CPU thermal trip support for processor protection, 0°C – 60°C operating temperature</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
<td>ACPI power management, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, UID, WOL</td>
</tr>
</tbody>
</table>
**Controller**

**Onboard RAID**

**Other Features**

**Manageability**

**Expansion Slots**

**Thermal Control**

**I/O Devices**

**Memory Capacity & Slots**

**Chipset/System Bus**

**Processor**

**Ports**

**Form Factor**

**Health Monitoring**

**Model**

**Capacity & Slots**

**ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS, WOL**

**ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS, WOL**

**ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS, WOL**

**ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS, WOL**
### Embedded Low Power Quad Core

#### Processor
- 8th Generation Intel® Core™ i7-8600U Processor
- Single Socket FCBGA-1528 supported, CPU TDP support Up to 15W TDP System on Chip
- 3.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)

**Chipset Form Factor**
- Optimized Chassis
- SuperServer Memory Capacity & Slots*

**Other Features**
- 8-pin 12-24V DC Power Connector, AC/DC power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, AMI UEFI

### Embedded Low Power

#### Processor
- Intel® Celeron® Processor 4305U
- Single Socket FCBGA-1528 supported, CPU TDP support Up To 15W TDP System on Chip
- 3.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)

**Chipset Form Factor**
- Optimized Chassis
- SuperServer Memory Capacity & Slots*

**Other Features**
- 8-pin 12-24V DC Power Connector, AC/DC power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, AMI UEFI

### Embedded Low Power Quad Core

#### Processor
- 8th Generation Intel® Core™ i3-8145U Processor
- Single Socket FCBGA-1528 supported, CPU TDP support Up To 15W TDP System on Chip
- 3.5” SBC, 5.7” x 4.0” (14.6cm x 10.16cm)

**Chipset Form Factor**
- Optimized Chassis
- SuperServer Memory Capacity & Slots*

**Other Features**
- 8-pin 12-24V DC Power Connector, AC/DC power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, AMI UEFI

### Embedded/IoT Motherboard Solutions

#### Embedded/IoT Building Block Solutions - August 2020

#### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>X115SWN-E</th>
<th>X115SWN-H</th>
<th>X115SWN-L</th>
<th>X115SWN-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>8th Gen Intel® Core™ i7-8569U Processor</td>
<td>8th Gen Intel® Core™ i7-8606U Processor</td>
<td>8th Gen Intel® Core™ i3-8145U Processor</td>
<td>Intel® Celeron® Processor 4305U</td>
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<tr>
<td>Chipset Form Factor</td>
<td>Optimized</td>
<td>Optimized</td>
<td>Optimized</td>
<td>Optimized</td>
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<tr>
<td>Chassis</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots*</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
<td>Up to 64GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots</td>
</tr>
<tr>
<td>USB Ports</td>
<td>4 USB 3.1 Gen2 ports (4 Rear Type A)</td>
<td>4 USB 2.0 ports (4 via headers)</td>
<td>4 USB 3.1 Gen2 ports (4 Rear Type A)</td>
<td>4 USB 3.1 Gen2 ports (4 Rear Type A)</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 HD Audio header Mic-in/Headphone-out (Audio only support at 0~60C)</td>
<td>1 8-bit GPIO header</td>
<td>1 HD Audio header Mic-in/Headphone-out (Audio only support at 0~60C)</td>
<td>1 HD Audio header Mic-in/Headphone-out (Audio only support at 0~60C)</td>
</tr>
<tr>
<td>PC Health</td>
<td>-E: -0°C – 60°C operating temperature</td>
<td>-E: -0°C – 60°C operating temperature</td>
<td>-E: -0°C – 60°C operating temperature</td>
<td>-E: -0°C – 60°C operating temperature</td>
</tr>
<tr>
<td>Monitoring</td>
<td>-E-W0HS: 0°C – 70°C operating temperature (Need customer thermal solution)</td>
<td>-E-W0HS: 0°C – 70°C operating temperature (Need customer thermal solution)</td>
<td>-E-W0HS: 0°C – 70°C operating temperature (Need customer thermal solution)</td>
<td>-E-W0HS: 0°C – 70°C operating temperature (Need customer thermal solution)</td>
</tr>
<tr>
<td>BIOS</td>
<td>AMI UEFI</td>
<td>AMI UEFI</td>
<td>AMI UEFI</td>
<td>AMI UEFI</td>
</tr>
</tbody>
</table>

**Notes:**
- *Supermicro chassis required for optimal functionality and performance.
- *For detailed memory configurations please refer to Supermicro website.
<table>
<thead>
<tr>
<th>Model</th>
<th>X11SCZ-F</th>
<th>X11SCZ-Q</th>
<th>X11SSQ</th>
<th>X11SSQ-L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® E-2100 Processor/E-2200 Processor, 8th/9th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor. Single Socket LGA-1151 (Socket H4) supported; CPU TDP support up to 95W TDP</td>
<td>Intel® 7th/6th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor. Single Socket LGA-1151 (Socket H4) supported; CPU TDP support up to 95W TDP</td>
<td>Intel® Xeon® E-2100 Processor/E-2200 Processor, 8th/9th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor. Single Socket LGA-1151 (Socket H4) supported; CPU TDP support up to 95W TDP</td>
<td>Intel® Xeon® E-2100 Processor/E-2200 Processor, 8th/9th Generation Intel® Core™ i9/Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processor. Single Socket LGA-1151 (Socket H4) supported; CPU TDP support up to 95W TDP</td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® C246</td>
<td>Intel® C370</td>
<td>Intel® Q370</td>
<td>Intel® H110</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>uATX 9.6” x 9.6” (24.38cm x 24.38cm)</td>
<td>uATX 9.6” x 9.6” (24.38cm x 24.38cm)</td>
<td>uATX 9.6” x 9.6” (24.38cm x 24.38cm)</td>
<td>microATX 9.6” x 9.6”</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 128GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: 1 SATA/PCI-E 3.0 x4 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: 1 SATA/PCI-E 3.0 x4 M.2 Form Factor: 2280/22110 M.2 Key: M-Key</td>
<td>1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4, 1 PCI-E 3.0 x1, M.2 PCI-E x2 2242/60/80</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 2.0 x1, 1 PCI-E 2.0 x1</td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Onboard controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Onboard controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® Q370 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Q170 controller for 6 SATA3 ports: RAID 0,1,5,10</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Single LAN with Intel® Ethernet Controller i210-AT</td>
<td>Single LAN with Intel® Ethernet Controller i210-AT</td>
<td>Single LAN with Intel® PHY i219LM LAN controller</td>
<td>Dual GbE LAN with Intel® i219LM and i210AT</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 VGA D-Sub Connector port 1 DVI -1 port 2 Display (DisplayPort) ports 1 Aspeed AST2500 BMC 1 Intel® HD Graphics 3 Independent Displays</td>
<td>1 DVI -1 port, 2 DP (DisplayPort) ports, 1 Intel® HD Graphics, 3 Independent Displays</td>
<td>1 HDMI, 1 DVI-D, 1 DP (Display Port), 1 eDP (X11SSQ only)</td>
<td>1 HDMI, 1 DVI-D, 1 DP (Display Port), 1 eDP (X11SSQ only)</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>7 USB 2.0 ports (6 headers, 1 Type A) 2 USB 3.1 Gen1 ports (2 headers) 6 USB 3.1 Gen2 ports (3 Rear Type A + 1 Rear Type C, 2 headers)</td>
<td>7 USB 2.0 ports (6 headers + 1 Type A), 1 USB 3.0 ports (3 headers), 6 USB 3.1 ports (4 Rear Type A + 1 Rear Type C)</td>
<td>4x USB 3.0 ports (2 rear + 2 via header) 6x USB 2.0 ports (2 rear + 4 via headers) X11SSQ: 2x additional rear USB 2.0 ports</td>
<td>4x USB 3.0 ports (2 rear + 2 via header) 6x USB 2.0 ports (2 rear + 4 via headers) X11SSQ: 2x additional rear USB 2.0 ports</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>ALC 8885 HD Audio TPM Header &amp; Chip both 4 COM Ports (4 headers)</td>
<td>1 Port SuperDOD, ALC 8885 HD Audio, TPM Header &amp; Chip both 4 COM Ports (4 headers)</td>
<td>1x SuperDOD ports with built-in power, SMBus header, SGPIO Header</td>
<td>1x SuperDOD ports with built-in power, SMBus header</td>
</tr>
<tr>
<td><strong>Manageability</strong></td>
<td>IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, SuperDoctor® 5, Watchdog</td>
<td>AMT, NMI, SuperDoctor® 5, vPro, Watchdog</td>
<td>SuperDoctor 5, NMI, Watchdog: AMT vPRO</td>
<td>SuperDoctor 5, NMI, Watchdog</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05 (VCC) 1.2V (VDIMM), 3.3V standby, 6-fan status, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VAT</td>
<td>+1.35V, +1.5V, +1.8V, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 5-fan status</td>
<td>Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +5V Standby, VBAT, HT, Memory, Chipset Voltages.</td>
<td>Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +5V Standby, VBAT, HT, Memory, Chipset Voltages.</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control</td>
<td>5x 4-pin fan headers, 5 fans with tachometer status monitoring, Dual Cooling Zone</td>
<td>Monitoring for CPU and chassis environment CPU thermal trip support PECI, Temperature sensing logic, Thermal Monitor 2 (TMS2) support PECI</td>
<td>Monitoring for CPU and chassis environment CPU thermal trip support PECI, Temperature sensing logic, Thermal Monitor 2 (TMS2) support PECI</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>12VDC or ATX Power Source, 8-pin 12VDC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS, UID</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS</td>
<td>Chassis intrusion detection Chassis intrusion header RoHS, RST</td>
<td>Chassis intrusion detection Chassis intrusion header RoHS, RST</td>
</tr>
<tr>
<td>MODEL</td>
<td>X11SSZ-QF</td>
<td>X11SSZ-F</td>
<td>X11SSZ-TLN4F</td>
<td>X11SSV-LVDS</td>
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</tr>
<tr>
<td>Processor</td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Socket H4 (LGA 1151) supported; CPU TDP support 95W</td>
<td>Intel® Xeon® processor E3-1200 v6/v5 product family, Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Intel® Celeron®, Socket H4 (LGA 1151) supported; CPU TDP support 95W</td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Intel® Celeron®, Socket H4 (LGA 1151) supported; CPU TDP support 95W</td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Pentium®, Intel® Celeron®, Socket H4 (LGA 1151) supported; CPU TDP support 91W</td>
</tr>
<tr>
<td>Memory</td>
<td>64GB Unbuffered Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>64GB Unbuffered Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
</tr>
<tr>
<td></td>
<td>Onboard RAID Controller</td>
<td>Intel® Q170 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C236 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C236 Express controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td></td>
<td>USB Ports</td>
<td>4 USB 3.0 ports (2 rear + 2 via header)</td>
<td>4 USB 3.0 ports (2 rear + 2 via header)</td>
<td>5 USB 2.0 ports (4 via headers, 1 Type A)</td>
</tr>
<tr>
<td></td>
<td>Other Onboard I/O Devices</td>
<td>1 Port SuperDOM</td>
<td>1 Port SuperDOM</td>
<td>2 ports SuperDOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3/Pentium®/Celeron®</td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3/Pentium®/Celeron®</td>
<td>Intel® 7th/6th Generation Core™ i7/i5/i3/Pentium®/Celeron®</td>
</tr>
<tr>
<td></td>
<td>Manageability</td>
<td>PMI 2.0 + KVM with dedicated LAN, AMT/vPRO, NMI, SuperDoctor 5, Watchdog</td>
<td>PMI 2.0 + KVM with dedicated LAN, AMT/vPRO, NMI, SuperDoctor 5, Watchdog</td>
<td>PMI 2.0 + KVM with dedicated LAN, AMT/vPRO, NMI, SuperDoctor 5, Watchdog</td>
</tr>
<tr>
<td></td>
<td>Health Monitoring</td>
<td>-1.0V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, Supports system management utility, System level control</td>
<td>-1.8V, +12V, 3.3V, 5V, +5V standby, Monitors CPU voltages, Supports system management utility, System level control</td>
<td>-1.8V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 4-fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td></td>
<td>Thermal Control</td>
<td>6-pin 12V DC power connector, ACPI power management, AXI Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, JUID, WOL, PSTe</td>
<td>6-pin 12V DC power connector, ACPI power management, AXI Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, JUID, WOL, PSTe</td>
<td>6-pin 12V DC power connector, ACPI power management, AXI Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, JUID, WOL, PSTe</td>
</tr>
<tr>
<td></td>
<td>Other Features</td>
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<td></td>
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<tr>
<td>MODEL</td>
<td>X11SDW-4C-TL13F+</td>
<td>X11SDW-14CN-TL13F+</td>
<td>X11SDW-16C-TL13F+</td>
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<tr>
<td>Processor</td>
<td>Single Socket FCBGA-2518 supported; Intel® Xeon® Processor D-2121T, CPU TDP 60W;</td>
<td>Intel® Xeon® Processor D-2146T, CPU TDP 80W;</td>
<td>Intel® Xeon® Processor D-2181T, CPU TDP 100W;</td>
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<tr>
<td>- 4 USB 2.0 ports (4 via headers)</td>
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<tr>
<td>- USB Ports</td>
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<tr>
<td>- Onboard RAID Controller</td>
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<tr>
<td>- Onboard LAN</td>
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<tr>
<td>- Dual LAN with 10GbS+ LAN via SoC</td>
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<tr>
<td>- Single Socket FCBGA-2518 supported;</td>
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<tr>
<td>- Intel® Xeon® Processor D-2121T, CPU TDP 60W;</td>
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<tr>
<td>- Intel® Xeon® Processor D-2146T, CPU TDP 80W;</td>
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<tr>
<td>- Intel® Xeon® Processor D-2181T, CPU TDP 100W;</td>
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<tr>
<td>- Onboard VGA/Display Controller</td>
<td></td>
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<tr>
<td>- 1 VGA port, 1.8V, +12V, +3.3V, +5V, +5V standby, 6-pin status, Chassis intrusion header, MTM Header, 1 COM Port (1 rear, 1 header)</td>
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<tr>
<td>- Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMID 2, KVM with dedicated LAN, NMI, SUM, SuperDoctor 5, Watchdog</td>
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</tbody>
</table>

**Other Features**

- 3x 4-pin fan headers (up to 6 fans), fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Low noise fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, System level control, Dual Cooling Zone, Fan temperature, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control) | 2x 4-pin fan headers (up to 3 fans), fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control) | 2x 4-pin fan headers (up to 4 fans), Dual Cooling Zone, Low noise fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control | 2x 4-pin fan headers (up to 4 fans), Dual Cooling Zone, Low noise fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control) |
- Intel® Xeon® Processor D-2121T, CPU TDP 60W; Intel® Xeon® Processor D-2146T, CPU TDP 80W; Intel® Xeon® Processor D-2181T, CPU TDP 100W; | Intel® Xeon® Processor D-2146T, CPU TDP 80W; Intel® Xeon® Processor D-2181T, CPU TDP 100W; | Intel® Xeon® Processor D-2146T, CPU TDP 80W; Intel® Xeon® Processor D-2181T, CPU TDP 100W; | Intel® Xeon® Processor D-2121T, CPU TDP 60W; Intel® Xeon® Processor D-2146T, CPU TDP 80W; Intel® Xeon® Processor D-2181T, CPU TDP 100W; |

**Chipset/System Bus**

- System on Chip | System on Chip | System on Chip | System on Chip |
- Proprietary WIO, 8" x 10" (20.32cm x 25.4cm) | Proprietary WIO, 8" x 10" (20.32cm x 25.4cm) | Proprietary WIO, 8" x 10" (20.32cm x 25.4cm) | Proprietary WIO, 8" x 10" (20.32cm x 25.4cm) |
- PCI-E x 3.0 x2 Left Side Slot | PCI-E x 3.0 x2 Left Side Slot | PCI-E x 3.0 x2 Left Side Slot | PCI-E x 3.0 x2 Left Side Slot |
- M 2 Key-B SATA/PCI-E x 3.0 x4, 2280/22110 | M 2 Key-B SATA/PCI-E x 3.0 x4, 2280/22110 | M 2 Key-B SATA/PCI-E x 3.0 x4, 2280/22110 | M 2 Key-B SATA/PCI-E x 3.0 x4, 2280/22110 |
- M 2 Key-B SATA/PCI-E x 3.0 x1, 2230 | M 2 Key-B SATA/PCI-E x 3.0 x1, 2230 | M 2 Key-B SATA/PCI-E x 3.0 x1, 2230 | M 2 Key-B SATA/PCI-E x 3.0 x1, 2230 |

**Onboard RAID Controller**

- SATA controller for 4 SATA (6 Gbps) ports; RAID 0,1,5,10 | SATA controller for 4 SATA (6 Gbps) ports; RAID 0,1,5,10 | SATA controller for 4 SATA (6 Gbps) ports; RAID 0,1,5,10 | SATA controller for 4 SATA (6 Gbps) ports; RAID 0,1,5,10 |

**Onboard V/D Connector Ports**

- 2x USB 3.1 Gen1 ports (2 rear) Type A | 2x USB 2.0 ports (4 via headers) | 2x USB 2.0 ports (4 via headers) | 2x USB 2.0 ports (4 via headers) |
- 1x COM Port (1 rear, 1 header) | 2x COM Port (1 rear, 1 header) | 2x COM Port (1 rear, 1 header) | 2x COM Port (1 rear, 1 header) |

**Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, IPMID 2, KVM with dedicated LAN, NMI, SUM, SuperDoctor 5, Watchdog**

- **Dual Cooling Zone, Fan speed control, Low noise fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, System level control, Dual Cooling Zone, Fan temperature, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control)** | **Dual Cooling Zone, Fan speed control, Low noise fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, System level control, Dual Cooling Zone, Fan temperature, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control)** | **Dual Cooling Zone, Fan speed control, Low noise fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, System level control, Dual Cooling Zone, Fan temperature, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control)** | **Dual Cooling Zone, Fan speed control, Low noise fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, System level control, Dual Cooling Zone, Fan temperature, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Support 3 pin fans (w/o speed control)** |
<table>
<thead>
<tr>
<th>MODEL</th>
<th>X11SDV-4C-TP8F</th>
<th>X11SDV-6C-TP8F</th>
<th>X11SDV-12C-TP8F</th>
<th>X11SDV-16C-TP8F</th>
<th>X10SDV-7TP4F</th>
<th>X10SDV-2C-7TP4F</th>
<th>X10SDV-4C-7TP4F</th>
<th>X10SDV-F</th>
<th>X10SDV-8C+-LN2F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Xeon® Processor D-2133IT, 4 Core, CPU TDP support 60W</td>
<td>Intel® Xeon® Processor D-1587 product family; 16 Core, 32 Threads, Socket FCGBA1667 supported; CPU TDP support 65W</td>
<td>Socket FCGBA 1667 supported; -7TP4F: Intel® Xeon® Processor D-1537, 8 Core, CPU TDP support 35W</td>
<td>Intel® Xeon® Processor D-1518, 6MB, 4 Core, 35W</td>
<td>Intel® Xeon® Processor D-1541, 8 Core; Socket FCGBA1667 supported; CPU TDP support 45W; F: with Passive Heatsink</td>
<td>-8C+LN2F: With Active Heatsink</td>
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</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
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<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX 6.75” x 6.75” (17.15cm x 17.15cm)</td>
<td>Dual Cooling Zones, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
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<tr>
<td><strong>Capacity &amp; Slots</strong></td>
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<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>SoC controller for 12 SATA3 (6 Gbps) ports; RAID 0, 1, 5, 10 Quad LAN with Intel® Ethernet Controller i350-AAM4</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i210; Dual GbE LAN with Intel® i350-AAM4</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0, 1, 10; Intel® RAID 0, 1, 5, 10 Quad LAN with Intel® Ethernet Controller i350-AAM4</td>
<td>SoC controller for 6 SATA3 (6 Gbps) ports; RSTe, Intel® Raid 0, 1, 10</td>
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<tr>
<td><strong>Onboard LAN</strong></td>
<td>Dual GbE Sub-Connector port, 1 Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
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<tr>
<td><strong>USB Ports</strong></td>
<td>2 USB 2.0 ports (2 rear), 2 USB 3.0 ports (2 rear)</td>
<td>2 USB 3.0 ports (2 rear), 2 USB 3.0 ports (2 rear)</td>
<td>2 USB 3.0 ports (2 rear), 2 USB 3.0 ports (2 rear)</td>
<td>4 USB 2.0 ports (4 via headers)</td>
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<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>1 COM Port (1 header)</td>
<td>2 ports SuperDOM, TPM 2.0 Header, 1 COM Ports (1 header), GPIO and SMBus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Ports (1 header), GPIO and SMBus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Ports (1 header), GPIO and SMBus headers</td>
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<tr>
<td><strong>Management</strong></td>
<td>IPMI 2.0, KVM with dedicated LAN, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, NMI, SSRM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, SSRM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, SSRM, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td><strong>Health Monitoring</strong></td>
<td>+1.5V, +12V, +3.3V, +5V, +5V standby, 5 (4-pin), 5 -fan status, Monitors CPU voltages, System level control</td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, Chassis intrusion header, Monitors for CPU Cores, System level control, VBAT</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, CPU thermal trip support for processor protection, Dual Cooling Zones, M.2 NGFF connector, RoHS, Intel® QuickAssist Technology</td>
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<td>4-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
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</table>
# Embedded/IoT Motherboard Solutions

## Intel Xeon D

- **SoC**: 2/4 Core, 128GB Memory, 2x 10GbE SFP+, 6x GbE
- **Processor**: Intel® Xeon® D Series, Socket FCBGA 1667 supported; CPU TDP support 35W; 2C: D-1518, 4 Core, 3MB, 25W; 2C: D-1508, 3MB, 2 Core, 25W

## Intel Xeon W

- **SoC**: 8/12 Core, 128GB Memory, 2x 10GbE SFP+, 2x GbE
- **Processor**: Intel® Xeon® Processor W Family, Single Socket R4 (LGA 2066) supported; CPU TDP support Up to 140W

### Model Specifications

<table>
<thead>
<tr>
<th>MODEL</th>
<th>X10SDV-TP8F</th>
<th>X10SDV-4C+~TP4F</th>
<th>X10SDV-8C~TLN4F+</th>
<th>X10SDV-12C~TLN4F+</th>
<th>X10SDV-16C~TLN4F+</th>
<th>X11SRM-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Xeon® Processor D-1518, 4 Core, Socket FCBGA 1667 supported; CPU TDP support 35W; 2C: D-1508, 3MB, 2 Core, 25W</td>
<td>Intel® Xeon® Processor D-1518, 4 Core, Socket FCBGA 1667 supported; CPU TDP support 35W; 2C: D-1508, 3MB, 2 Core, 25W</td>
<td>Intel® Xeon® Processor D series, Socket FCBGA 1667 supported; 8C: D-1537, 12MB, 8 Core, 35W; 12C: D-1557, 18MB, 12 Core, 45W; 16C: D-1587, 24MB, 16 Core, 65W; with Passive Heatsink</td>
<td>Intel® Xeon® Processor W Family. Single Socket R4 (LGA 2066) supported; CPU TDP support Up to 140W</td>
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<tr>
<td>Chipset/System Bus</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>System on Chip</td>
<td>Intel® C422 microATX, 9.6” x 9.6” (24.38cm x 24.38cm)</td>
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<tr>
<td>Form Factor</td>
<td>Flex ATX 9.0” x 7.25”</td>
<td>Flex ATX 9.0” x 7.25”</td>
<td>Intel® C422 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 128GB ECC RDIMM, or 64GB ECC/non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots</td>
<td>Up to 128GB Registered ECC RDIMM, DDR4-2666MHzUp to, 256GB Load Reduced ECC LRDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
<td>Up to 128GB Registered ECC RDIMM, DDR4-2666MHzUp to, 256GB Load Reduced ECC LRDIMM, DDR4-2666MHz, in 4 DIMM slots</td>
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<tr>
<td>Expansion Slots</td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>2 PCI-E 3.0 x8, M.2 PCI-E 3.0 x4, M Key 2242/2280/22110; Mini-PCI-E with mSATA support</td>
<td>1 PCI-E 3.0 x16, M.2 PCI-E 3.0 x4, M Key 2242/2280</td>
<td>1 PCI-E 3.0 x16, 2 PCI-E 3.0 x8, M.2 Interface: PCI-E 3.0 x4, M.2 Form Factor: 2280, 4 PCI-E 3.0 NVMe x4</td>
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<tr>
<td>Onboard RAID Controller</td>
<td>SoC controller for 4 SATA3 (6 Gbps) ports; RSTe, Intel® RAID 0,1,5,10</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i210</td>
<td>Intel® C422 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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<tr>
<td>Onboard LAN</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i210</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i210</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4;</td>
<td>Dual 10GbE SFP+ from SoC; Dual GbE LAN with Intel® i350-AM4;</td>
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<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA via Aspeed AST2400 BMC</td>
<td>1 VGA port, 1 Aspeed AST2500 BMC</td>
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</tr>
<tr>
<td>USB Ports</td>
<td>2 USB 3.0 ports (2 rear), 5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>2 USB 3.0 ports (2 rear), 5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>2 USB 2.0 ports (2 via headers)</td>
<td>2 USB 2.0 ports (2 via headers)</td>
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<tr>
<td>Other Onboard I/O Devices</td>
<td>2 ports SuperDOM</td>
<td>2 ports SuperDOM</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPIO and SMbus headers</td>
<td>1 Port SuperDOM, TPM Header, 1 COM Port (1 header), GPIO and SMbus headers</td>
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<tr>
<td>Manageability</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Redfish 1.0 + IPMI 2.0 + KVM with dedicated LAN, AMT, NMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td>Health Monitoring</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6-fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6-fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6-fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 1.2V (VDIMM), 6-fan status, Chassis intrusion header, Supports system management utility, System level control, VBAT</td>
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<tr>
<td>Thermal Control</td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6-4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>6x 4-pin fan headers (up to 6 fans)</td>
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<tr>
<td>Other Features</td>
<td>8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, Node Manager Support, SDDC, System level control, UID, WOL</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, RoHS, UID</td>
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**SUPERMICRO** Embedded/IoT Building Block Solutions - August 2020
<table>
<thead>
<tr>
<th>MODEL</th>
<th>X11SSV-M4</th>
<th>X11SSV-M4F</th>
<th>X11SSH-F</th>
<th>X11SSH-LN4F</th>
<th>X11SAE</th>
<th>X11SAE-F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® ‘Xeon’ processor E3-1515M v5; Single Socket FCBGA1440 supported; CPU up to 8.0GHz; CPU TDP support 45W; 2.8-3.7GHz, 8MB</td>
<td>Intel® ‘Xeon’ processor E3-158S v5; Single Socket FCBGA1440 supported; CPU up to 8.0GHz; CPU TDP support 65W; 3.5-3.9GHz, 8MB</td>
<td>Intel® ‘Xeon’ processor E3-1200 v6/v5 product family, Intel® 7th/6th Generation Core i3 series, Intel® Celeron, Intel® Pentium, Socket H4 (LGA 1151) supported; CPU TDP support 80W</td>
<td>Intel® ‘Xeon’ processor E3-1200 v6/v5 product family, Intel® 7th/6th Generation Core i7/i5/i3 series, Intel® Celeron’, Intel® Pentium’, Socket H4 (LGA 1151) supported; CPU TDP support 95W</td>
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</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® CM236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
<td>Intel® C236</td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>Mini-ITX 6.7” x 6.7”</td>
<td>M-ITX 6.7” x 6.7”</td>
<td>micoATX 9.6” x 9.6”</td>
<td>ATX 12” x 9.6”</td>
<td>ATX 12” x 9.6”</td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 32GB Unbuffered ECC/Non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>Up to 32GB Unbuffered ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots</td>
<td>4GB Unbuffered ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td>6GB Unbuffered ECC Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion Slots</strong></td>
<td>1 PCI-E 3.0 x16 (Bifurcation support on PCI-E x16 slot)</td>
<td>1 PCI-E 3.0 x16 (in x16 slot)</td>
<td>1 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x4 (in x8 slot)</td>
<td></td>
</tr>
<tr>
<td><strong>Onboard RAID Controller</strong></td>
<td>Intel® C236 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C236 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C236 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C236 controller for 8 SATA3 (6 Gbps) ports; RAID 1,5,10,10</td>
<td>Intel® C236 controller for 8 SATA3 (6 Gbps) ports; RAID 1,5,10,10</td>
<td>Intel® C236 controller for 8 SATA3 (6 Gbps) ports; RAID 1,5,10,10</td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Single LAN with Intel® PHY I219LM LAN controller</td>
<td>Single LAN with Intel® Ethernet Controller 210-AT</td>
<td>Dual LAN with Intel® Ethernet Controller 350-AM2</td>
<td>Dual LAN with Intel® Ethernet Controller 350-AM2</td>
<td>Single LAN with Intel® Ethernet Controller 210-AT</td>
<td>Single LAN with Intel® Ethernet Controller 210-AT</td>
</tr>
<tr>
<td><strong>Onboard VGA/Display Ports</strong></td>
<td>1 HDMI, 1 DP (DisplayPort), 1 DVI - I</td>
<td>1 HDMI, 1 DP (DisplayPort), 1 DVI - I</td>
<td>1 Aspeed AST2400 BMC</td>
<td>1 VGA (from Aspeed AST2400 BMC)</td>
<td>1 HDMI (DisplayPort)</td>
<td>1 HDMI, 1 VGA (for IPMI only)**</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>5 USB 2.0 ports (+ 4 via headers + 1 Type A)</td>
<td>5 USB 3.0 ports (2 rear + 2 via header + 1 Type A)</td>
<td>6 USB 2.0 ports (2 rear + 4 via headers)</td>
<td>6 USB 3.0 ports (2 rear + 4 via headers)</td>
<td>Ext. Power Connector Only</td>
</tr>
<tr>
<td><strong>Health Monitoring</strong></td>
<td>+12V, +3.3V, +5V, +5V standby, 3-fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, 1.05V (PCH), 3-fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
<td>+12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, VBAT</td>
</tr>
<tr>
<td><strong>Thermal Control</strong></td>
<td>3x 4-pin fan headers (up to 3 fans), Fan speed control, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Thermal control tachometer fan connectors</td>
<td>3x 4-pin fan headers (up to 3 fans), Fan speed control, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors</td>
<td>5 4-pin, Fan speed control, Overheat LED indication, Thermal control tachometer fan connectors</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
<td>8-pin 12V DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector</td>
</tr>
<tr>
<td><strong>Other Features</strong></td>
<td>12V DC or ATX Power Source, 8-pin 12V DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector, RoHS, System level control, WOL</td>
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<tr>
<td>MODEL</td>
<td>X10SLV</td>
<td>X10SLV-Q</td>
<td>X10SLQ</td>
<td>X10SLQ-L</td>
<td>X10SLH-F</td>
<td>X10SAE</td>
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</tr>
<tr>
<td>Processor</td>
<td>Intel® 4th Generation Core™; Intel® Pentium®; Intel® Celeron® series; Socket LGA 1150 supported; CPU TDP support Up to 84W TDP</td>
<td>Intel® 4th Generation Core™; Intel® Pentium®; Intel® Celeron® series; Socket LGA 1150 supported; CPU TDP support Up to 84W TDP</td>
<td>Intel® Xeon® processor E3-1200 v4/v3 series; Intel® Pentium®; Intel® Celeron®; Socket LGA 1150 supported</td>
<td>Intel® Xeon® processor E3-1200 v4/v3 series; Intel® Pentium®; Intel® Celeron®; Socket LGA 1150 supported</td>
<td>Intel® 4th Generation Core™ i3 series; Intel® Pentium®; Intel® Celeron® series; Socket LGA 1150 supported; CPU TDP support Up to 135W/TDP</td>
<td></td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>Intel® H81</td>
<td>Intel® Q87 Express</td>
<td>Intel® Q87 Express</td>
<td>Intel® C226</td>
<td>Intel® C226</td>
<td></td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>Up to 16GB DDR3 1600MHz Non-ECC SO-DIMM in 2 slots</td>
<td>1 PCI-E x16 (in x16 slot), 1 PCI-E 2.0 x4, 1 PCI-E 2.0 x1, Mini-PCH-E with mSATA support</td>
<td>1 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, 1 PCI-E 2.0 x8 (in x8 slot)</td>
<td>Dual LAN with Intel® Ethernet Controller I217LM &amp; I210AT</td>
<td>ATX 12” x 9.6”</td>
<td>Intel® C226</td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Intel® H81/Q87 controller for 2 SATA3 (6 Gbps) ports; 2 SATA3 (3 Gbps)</td>
<td>Intel® Q87 controller for 5 SATA3 (6Gbps) ports; 0,1,5,10</td>
<td>Intel® C226 controller for 6 SATA3 (6Gbps) ports; 0,1,5,10</td>
<td>Dual LAN with Intel® Ethernet Controller I210AT</td>
<td>Intel® C226 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10 ASM1061 controller for 2 SATA3 (6 Gbps) ports; Single LAN with Intel® Ethernet Controller I210</td>
<td>ATX 12” x 9.6”</td>
</tr>
<tr>
<td>USB Ports</td>
<td>2 USB 3.0 ports (2 rear + 5 USB 2.0 ports (2 rear + 2 via headers + 1 Type A)</td>
<td>4 USB 3.0 ports (2 rear + 2 via headers + 2 USB 2.0 ports (4 rear + 4 via headers + 1 Type A)</td>
<td>4 USB 3.0 ports (2 rear + 1 via header + 1 Type A)</td>
<td>4 USB 3.0 ports (2 rear + 4 via headers)</td>
<td>4 USB 3.0 ports (2 rear + 4 via headers)</td>
<td>4 USB 3.0 ports (2 rear + 4 via headers)</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>1 SATA DOM power connector, ALC 8885 HD Audio Font panel header, 5 COM ports (1 with RS422/485), TPM 1.2 Header</td>
<td>1 SATA DOM power connector, ALC 8885, 7.1 HD Audio, 4 COM port headers (1 with RS422/485), P5/2 Combo mouse and keyboard; (L: W:0 P5/2 KB/MS)</td>
<td>1 SATA DOM power connector, 1 fast UART 16550 serial COM port headers (1 rear 1 header); 2 Total COM Ports; TLP 1.2 Header</td>
<td>1 SATA DOM power connector, 7.1 HD Audio, P5/2 mouse and keyboard; Type B of 1394a, TLP 1.2 on-board header</td>
<td>1 SATA DOM power connector, 7.1 HD Audio, P5/2 mouse and keyboard; Type B of 1394a, TLP 1.2 on-board header</td>
<td>1 SATA DOM power connector, 7.1 HD Audio, P5/2 mouse and keyboard; Type B of 1394a, TLP 1.2 on-board header</td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, supports system management utility, chassis intrusion header</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, Total of 5-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, 5 (4-pin), Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
<td>Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V Standby, 5 (4-pin), Chassis intrusion header, Monitors CPU voltages, Supports system management utility</td>
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<tr>
<td>Thermal Control</td>
<td>3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors</td>
<td>Overheat LED indication, fan speed control, Thermal control tachometer fan connectors</td>
<td>Overheat LED indication, fan speed control, 5x 4-pin fan headers with tachometer monitoring</td>
<td>Overheat LED indication, fan speed control, 5x 4-pin fan headers with tachometer monitoring</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
<td>5 4-pin, Fan speed control, Overheat LED indication</td>
</tr>
<tr>
<td>Other Features</td>
<td>4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, Adaptive Thermal Monitor &amp; CPU thermal trip support for processor protection, System level control, WOL, 0°C–60°C operating temperature</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, Adaptive Thermal Monitor &amp; CPU thermal trip support for processor protection, System level control, WOL, 0°C–60°C operating temperature</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, Adaptive Thermal Monitor &amp; CPU thermal trip support for processor protection, Node Manager support</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, WOL</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, WOL</td>
<td>ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, WOL</td>
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<tr>
<td>MODEL</td>
<td>X11DPi-N</td>
<td>X11DPI-NT</td>
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<tr>
<td>Processor</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Dual Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP, 2 UPI up to 10.4 GT/s</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Dual Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP, 3 UPI up to 10.4 GT/s</td>
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<tr>
<td>Chipset/System Bus</td>
<td>Intel® C621</td>
<td>Intel® C621</td>
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<tr>
<td>Form Factor</td>
<td>E-ATX, 12&quot; x 13&quot; (30.48cm x 33.02cm)</td>
<td>E-ATX, 12&quot; x 13&quot; (30.48cm x 33.02cm)</td>
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<tr>
<td>Memory Capacity &amp; Slots</td>
<td>16 DIMMs slots; Up to 4TB DDR4-2933 MHz with 256GB memory modules; Supports RDIMM, LRDIMM, 3DS RDIMM, and 3DS LRDIMM; Supports Intel® Optane® DCPMM™</td>
<td>16 DIMMs slots; Up to 4TB DDR4-2933 MHz with 256GB memory modules; Supports RDIMM, LRDIMM, 3DS RDIMM, and 3DS LRDIMM; Supports Intel® Optane® DCPMM™</td>
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<tr>
<td>Expansion Slots</td>
<td>4 PCI-E 3.0 x16, 2 PCI-E x1, 2 PCI-E 3.0 x8, 2 PCI-E 3.0 x4</td>
<td>3 PCI-E 3.0 x16, 4 PCI-E 3.0 x8, 2 PCI-E 3.0 NVMe x4 Internal Ports(s)</td>
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</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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</tr>
<tr>
<td>Board LAN</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
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</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td></td>
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</tr>
<tr>
<td>USB Ports</td>
<td>7 USB 3.2 Gen1 ports (4 rear + 2 via headers + 1 Type A)</td>
<td>7 USB 3.2 Gen1 ports (4 rear + 2 via headers + 1 Type A)</td>
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<tr>
<td>Other Onboard I/O Devices</td>
<td>2 ports SuperDOM</td>
<td>2 ports SuperDOM</td>
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<tr>
<td>2 ports COM Ports (1 rear, 1 header)</td>
<td>1 COM Port (1 rear)</td>
<td>1 COM Port (1 header)</td>
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<tr>
<td>Manageability</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI2.0, KVM with dedicated LAN, SPMI, SSM, SUM, SuperDoctor® 5, Watchdog</td>
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<tr>
<td>Health Monitoring</td>
<td>+12V, +3.3V, +5V, +5V standby, 3.3V standby, Monitors CPU voltages</td>
<td>+12V, +3.3V, +5V, +5V standby, 3.3V standby, Monitors CPU voltages</td>
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<tr>
<td>Thermal Control</td>
<td>8x 4-pin fan headers (up to 8 fans), PWM fan speed control</td>
<td>8x 4-pin fan headers (up to 8 fans), PWM fan speed control</td>
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<tr>
<td>Other Features</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, NCSI header, Node Manager Support, RoHS, SDDC, UID</td>
<td>ACPI power management, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, RoHS, SDDC, UID</td>
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</tr>
</tbody>
</table>

1. 2933 MHz in two DIMMs per channel can be achieved by using memory purchased from Supermicro.

2. For 2nd Generation Intel® Xeon® Scalable processors (Cascade Lake-SP Refresh / Cascade Lake-SP) only. Contact your Supermicro sales rep for more info.
### Embedded/IoT Motherboard Solutions

#### 2nd Gen Intel® Xeon® Scalable Processors

<table>
<thead>
<tr>
<th>MODEL</th>
<th>X11DPX-T</th>
<th>X11SPL-F</th>
<th>X11Spi-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Dual Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP, 3 UPI up to 10.4 GT/s</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Single Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 165W TDP</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Single Socket LGA-3647 (Socket P) supported, CPU TDP support Up to 205W TDP</td>
</tr>
<tr>
<td>Chipset/System Bus</td>
<td>Intel® C621</td>
<td>Intel® C621</td>
<td>Intel® C622</td>
</tr>
<tr>
<td>Form Factor</td>
<td>Proprietary, 15.12” x 13.2” (38.4cm x 33.53cm)</td>
<td>ATX, 12” x 9.6” (30.48cm x 24.38cm)</td>
<td>Intel® C622</td>
</tr>
<tr>
<td>Memory Capacity &amp; Slots</td>
<td>16 DIMM slots; Up to 4TB DDR4-2933 MHz with 256GB memory modules; Supports RDIMM, LRDIMM, 2DS RDIMM, and 3DS LRDIMM; Supports Intel® Optane™ DCPMM†† (128/256/512GB)</td>
<td>Up to 2TB 3DS ECC RDIMM, DDR4-2933MHz; Up to 2TB 3DS ECC LRDIMM, DDR4-2933MHz, in 8 DIMM slots; Up to 1TB Intel® Optane DC Persistent Memory in memory mode (Cascade Lake Only)</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>Expansion Slots</td>
<td>2 PCI-E 3.0 x16, 8 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot) or 4 PCI-E 3.0 x16 and 4 PCI-E 3.0 x8 and 8 PCI-E 3.0 x4 (in x8 slot)</td>
<td>2 PCI-E 3.0 x8 (in x16 slot), 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot)</td>
<td>Double Height Connector</td>
</tr>
<tr>
<td>M.2 Interface</td>
<td>Intel® C621 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C621 controller for 8 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>M.2 Form Factor</td>
<td>2280, 22110</td>
<td>2280, 22110</td>
<td>2280, 22110</td>
</tr>
<tr>
<td>M.2 Key</td>
<td>M-Key</td>
<td>M-Key</td>
<td>M-Key</td>
</tr>
<tr>
<td>Onboard RAID Controller</td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI 2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>Onboard LAN</td>
<td>Dual LAN with Intel® X550 10GBase-T Ethernet Controller</td>
<td>Dual LAN with 10GBase-T with Intel® X722 + X557</td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
</tr>
<tr>
<td>Onboard VGA/Display Ports</td>
<td>1 VGA D-Sub Connector port, ASPEED AST2500 BMC</td>
<td>1 VGA port</td>
<td>Dual LAN with Intel® X550 10GBase-T Ethernet Controller</td>
</tr>
<tr>
<td>USB Ports</td>
<td>4 USB 2.0 ports (2 rear + 2 via headers)</td>
<td>8 USB 2.0 ports (2 rear + 6 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
<td>6 USB 2.0 ports (2 rear + 4 headers), 5 USB 3.0 ports (2 rear + 2 headers + 1 Type A)</td>
</tr>
<tr>
<td>Other Onboard I/O Devices</td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header)</td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header)</td>
</tr>
<tr>
<td>Manageability</td>
<td>Intel® Node Manager, IPMI (Intelligent Platform Management Interface) v2.0 with KVM support, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI 2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
<td>Intel® Node Manager, IPMI 2.0, KVM with dedicated LAN, NMI, SPM, SUM, SuperDoctor® 5, Watchdog</td>
</tr>
<tr>
<td>Health Monitoring</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 10-fan status, 5+1 Phase-switching voltage regulator, Chassis intrusion header, HT, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 7-fan status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, +5V standby, 3.3V standby, 7-fan status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
</tr>
<tr>
<td>Thermal Control</td>
<td>10x4-pin fan headers (up to 10 fans)</td>
<td>7x4-pin fan headers (up to 7 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, UID, WOL</td>
</tr>
<tr>
<td>Other Features</td>
<td>Chassis intrusion detection, CPU thermal trip support for processor protection, Node Manager Support, RoHS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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* For detailed memory configurations please refer to Supermicro website.
** For integration into SuperServer® systems only, not available for sale as subsystems.
† For 2nd Generation Intel® Xeon® Scalable processors (Cascade Lake-SP) only. Contact your Supermicro sales rep for more info.
## Embedded/IoT Motherboard Solutions

### 2nd Gen Intel® Xeon® Scalable Processors

**X11 UP**

**High Performance**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>X11SPH-nCTF</th>
<th>X11SPH-nCTPF</th>
<th>X11SPM-F</th>
<th>X11SPM-TF</th>
<th>X11SPM-TPF</th>
<th>X11SPW-TF</th>
<th>X11SPW-CTF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Single Socket LGA-3647 (Socket P) supported, CPU TDP support up to 205W TDP</td>
<td>2nd Gen Intel® Xeon® Scalable Processors and Intel® Xeon® Scalable Processors, Single Socket LGA-3647 (Socket P) supported, CPU TDP support up to 165W TDP</td>
<td>Intel® C621</td>
<td>-F: Intel® C621</td>
<td>Intel® C622</td>
<td>Intel® C622</td>
<td></td>
</tr>
<tr>
<td><strong>Chipset/System Bus</strong></td>
<td>Intel® C622</td>
<td>Intel® C621</td>
<td>Intel® C621</td>
<td>-TF/-TPF: Intel® C622</td>
<td>Intel® C622</td>
<td>Intel® C622</td>
<td></td>
</tr>
<tr>
<td><strong>Form Factor</strong></td>
<td>ATX, 12” x 9.6” (30.48cm x 24.38cm)</td>
<td>microATX, 9.6” x 9.6” (24.38cm x 24.38cm)</td>
<td>Proprietary WIO, 8” x 13” (20.32cm x 33.02cm)</td>
<td>Intel® C622</td>
<td>Intel® C621</td>
<td>Intel® C621</td>
<td></td>
</tr>
<tr>
<td><strong>Memory Capacity &amp; Slots</strong></td>
<td>Up to 2TB 3DS ECC RDIMM, DDR4-2933MHz, Up to 2TB 3DS ECC LRDIMM, DDR4-2933MHz, in 8 DIMM slots</td>
<td>Up to 1.5TB 3DS ECC RDIMM, DDR4-2933MHz, in 6 DIMM slots, Up to 1 TB Intel® Optane DC Persistent Memory in memory mode (Cascade Lake Only)††</td>
<td>1 PCI-E 3.0 x16 (x16 or x8), 1 PCI-E 3.0 x8 (x0 or x8), 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: PCI-E 3.0 x4 and SATA M.2 Form Factor: 2280, 2 PCI-E 3.0 NVMe x4</td>
<td>1 PCI-E 3.0 x16</td>
<td>2 PCI-E 3.0 x16, 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x8</td>
<td>1 PCI-E 3.0 x16, 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8 slot) M.2 Interface: PCI-E 3.0 x4 and SATA M.2 Form Factor: 2280, 2280</td>
<td></td>
</tr>
<tr>
<td><strong>Onboard LAN</strong></td>
<td>Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10 Broadcom® 3008 SW controller for 8 SAS3 (12Gbps) ports; RAID 0,1,10</td>
<td>Intel® C621 controller for 12 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>-F: Intel® C621 controller for 12 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>-TF/-TPF: Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>-TF/CTF: Intel® C622 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10</td>
<td>Dual LAN with 10GBase-T with Intel® X722 + X557</td>
<td>Dual LAN with 10GBase-T with Intel® X722 + X557</td>
</tr>
<tr>
<td><strong>USB Ports</strong></td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
<td>1 VGA port</td>
</tr>
<tr>
<td><strong>Other Onboard I/O Devices</strong></td>
<td>2 ports SuperDOM, TPM Header, 2 COM Ports (1 rear, 1 header),</td>
<td>2 ports SuperDOM, 2 COM Ports (1 rear, 1 header),</td>
<td>2 ports SuperDOM, TPM Header, 2 COM Ports (1 rear, 1 header),</td>
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<td><strong>Health Monitoring</strong></td>
<td>+1.8V, +12V, +3.3V, +5V, 3.3V standby, 8-pin fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 3.3V standby, 7-pin status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 3.3V standby, 7-pin status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 3.3V standby, 7-pin status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>+1.8V, +12V, +3.3V, +5V, 3.3V standby, 7-pin status, Chassis intrusion header, HT, Monitors CPU voltages, Supports system management utility, VBAT</td>
<td>7x 4-pin fan headers (up to 7 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
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<tr>
<td><strong>Thermal Control</strong></td>
<td>8x 4-pin fan headers (up to 8 fans), Fan speed control, Overheat LED indication, PWM fan speed control, System level control</td>
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<tr>
<td><strong>Other Features</strong></td>
<td>ACPI power management, Control of power-on for recovery from AC power loss, RoHS, UID, WOL</td>
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† 2933 MHz in two DIMMs per channel can be achieved by using memory purchased from Supermicro.
†† For 2nd Gen Intel® Xeon® Scalable Processors only. Contact your Supermicro sales rep for more info.
Global Expansion
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